

1111 Broadway, 6th Floor Oakland, California 94607 PH 510.836.3034 FAX 510.836.3036 www.geosyntec.com

13 June 2014

Jacinto Soto Northern California Region Coastal Cleanup Operations Branch Department of Toxic Substances Control 700 Heinz Avenue, Suite 200 Berkeley, California 94710

Subject: Soil Sampling Summary and Proposed Excavation Limits at PepsiCo Site GE Oakland Facility, 5441 International Blvd., Oakland, California

Dear Mr. Soto:

On behalf of General Electric Company (GE), Geosyntec Consultants (Geosyntec) prepared this letter report to describe the results of pre-excavation soil investigation and proposed limits of excavations to be conducted to address soil containing polychlorinated biphenyls (PCBs) on the PepsiCo Site located at 5625 International Boulevard in Oakland, California (Figure 1). The soil investigation was performed as part of the approved Remedial Action Plan (RAP) for the GE Site located at 5441 International Boulevard in response to comments received from PepsiCo during the public comment period for the RAP. The PepsiCo Site abuts the southern side of the GE facility. The locations of the GE and PepsiCo Sites are shown on Figure 1.

1. BACKGROUND

Based on their review of the Draft Remedial Action Plan (RAP) for the GE property and results of soil samples collected from the PepsiCo property, the California Department of Toxic Substances Control (DTSC) requested that additional soil samples be taken on the GE-PepsiCo property boundary as part of the remedial design phase of the Site cleanup plan.

In accordance with DTSC's request, a Work Plan¹ was submitted to DTSC presenting the scope of proposed additional characterization of PCBs in soil at the GE-PepsiCo boundary and proposing excavation of soil containing PCBs exceeding 1 milligram per kilogram (mg/kg). The

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¹ Geosyntec Consultants, 2012, Revised Work Plan for Additional Soil Investigation and Soil Removal at PepsiCo Site, 25 April

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final Work Plan was approved by DTSC in a 4 September 2012 letter and by the US Environmental Protection Agency (USEPA) in a 23 May 2013 letter entitled "USEPA Conditional Approval of TSCA Application for Risk Based PCB Cleanup." In addition, USEPA approved placement of the soil to be excavated from the PepsiCo Site beneath the cap to be constructed at the GE Site.

2. SUMMARY OF PCB INVESTIGATIONS AT GE-PEPSICO BOUNDARY

Figure 2 illustrates the GE and PepsiCo Sites and identifies the area of investigation and proposed soil removal on the PepsiCo property. Both PepsiCo and GE have completed soil investigations in this area, as summarized below.

2.1 PepsiCo Soil Investigation

PepsiCo retained OTIE to collect additional soil samples at 14 locations on the northern boundary of its site for PCB analysis. Soil samples were collected on 3 May 2011 at depth intervals of 0 to 2 feet and 4 to 6 feet. The locations of the samples are shown on Figure 2, labeled as OAKSB samples. The samples were analyzed for PCB congeners using EPA Method 8082. The analytical results for these samples are summarized on Figure 2. Only Arochlor 1260 PCBs were detected at low levels on the PepsiCo Site. Only three of the 14 samples contained concentrations of PCBs above 1 mg/kg with the maximum PCB concentration detected at 4 mg/kg. PCB concentrations above 1 mg/kg were limited to the 0 to 2-foot samples.

2.2 **GE Soil Investigations**

Based on the previous samples collected by PepsiCo, additional soil sampling was performed by Geosyntec on behalf of GE in accordance with the DTSC- and USEPA-approved work plan to further define the limits of PCBs in soil at the PepsiCo Site. The sampling program included additional sampling locations and provisional sampling locations where samples were collected and put on hold at the laboratory pending results of the pre-determined samples. The objective of this sampling was to delineate and confirm the limits of PCB concentrations above 1 mg/kg to eliminate the need for post-excavation confirmation sampling and allow backfilling to proceed immediately following impacted soil removal. If any of the pre-determined samples contained PCBs above 1 mg/kg, the nearby provisional sample was analyzed to establish the removal limits. All sampling locations were marked in the field and surveyed.

2.2.1 Soil Sampling Methods

Using a truck-mounted 6600 Geoprobe rig, a 2.5-inch diameter acetate sleeve was driven to depth in order to collect samples from the deeper soil intervals. All samples were immediately put on ice and couriered to Curtis & Tompkins where the samples were extracted by EPA method 3540C and analyzed for PCBs by EPA method 8082. Borings were backfilled with grout and soil cuttings were placed in DOT drums and stored at the GE Site pending analytical results. The ground surface was restored to its previous condition.

2.2.2 Permitting

Borehole drilling permits were obtained from the Alameda County Public Works Agency. Copies of these permits are provided in Appendix A.

2.2.3 Laboratory Analysis

Soil samples were analyzed by Curtis & Tompkins laboratory where they were extracted by EPA method 3540C and analyzed for PCBs by EPA method 8082. Analytical laboratory reports are provided in Appendix B.

3. PROPOSED EXCAVATION LIMITS

Figure 2 summarizes the sample locations and the results of the PCB investigations at the two areas along the GE-PepsiCo boundary where PCBs were detected above 1 mg/kg. Figures 3 and 4 provide further detail of these areas and illustrate the proposed excavation boundaries in each area. Based on the results of investigations, concentrations of PCBs above 1 mg/kg were not detected at any of the samples collected at 4 feet below ground surface (bgs). Therefore, the excavation will not extend below a depth of 4 feet bgs, with one exception as discussed below. In 2010, PepsiCo installed a high pressure fire line along the property boundary, which is located within both excavation areas. The fire line was reportedly bedded in clean imported fill material. Therefore, if the fire line bedding material is encountered, the excavation will be terminated at the top of the bedding material. The total area to be excavated is approximately 2,800 square feet and the total volume to be excavated is approximately 11,200 cubic feet.

Pursuant to the approved work plan, Geosyntec has evaluated the current sampling results to determine if the results from the proposed excavation limits meet the cleanup objectives. Consistent with the approach used for the 2001 and 2005 residential cleanups and with USEPA

guidance^{2,3}, Geosyntec used the current ProUCL statistical software available from the USEPA⁴ (ProUCL Version 5.0.00), to calculate the 95% upper confidence limit (95% UCL) of the mean PCB concentrations in soil samples collected at the proposed excavation boundaries and in the area outside the excavation boundaries to determine the proposed excavation limits would result in an average PCB concentration less than 1 mg/kg. To calculate the post-excavation 95% UCL means, all soil data collected between 0 and 4 feet along the excavation area boundaries were included in the data sets. The data were separated into three sets, one for the East Excavation area, one for the West Excavation area, and one for the area outside the proposed excavation boundaries. The ProUCL output files are provided in Appendix C.

The results of the analysis indicate that the 95% UCL mean concentrations for PCBs for both the east and west excavation boundaries (0.452 mg/kg and 0.115 mg/kg) are well below the cleanup level of 1 mg/kg. The 95% UCL mean PCB concentration (0.253 mg/kg) outside the proposed excavation areas is also below the cleanup level of 1 mg/kg.

4. REPORTING

An Excavation Completion Report will be prepared by a California Registered Professional Engineer (PE) for submittal to DTSC. The report will also be provided to USEPA and PepsiCo. The completion report will include:

- a description of the excavation activities; and
- a drawing depicting the extent of the excavations.

GE is currently obtaining permits and procuring Contractors to implement the Site remedy, including excavation of soils on the PepsiCo property. We anticipate beginning remedy implementation in August 2014.

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² USEPA. 2002. Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites. Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Report No. OSWER 9285.6-10. December

³ USEPA. 1989. Methods for Evaluating Attainment of Cleanup Standards. Volume 1: Soils and Solid Media. Office of Policy, Planning, and Evaluation. Publication EPA/230/2-89/042. February.

⁴ USEPA, 2013. ProUCL Version 5.0 Technical Guide. Statistical Software for Environmental Applications for Data Sets with and without Nondetect Observations. EPA/600/R-07/041. September

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Please feel free to call the undersigned if you have any questions or comments.

Sincerely,

Nancy T. Bice, P.G., C.E.G.

Manay T. Bue

Principal

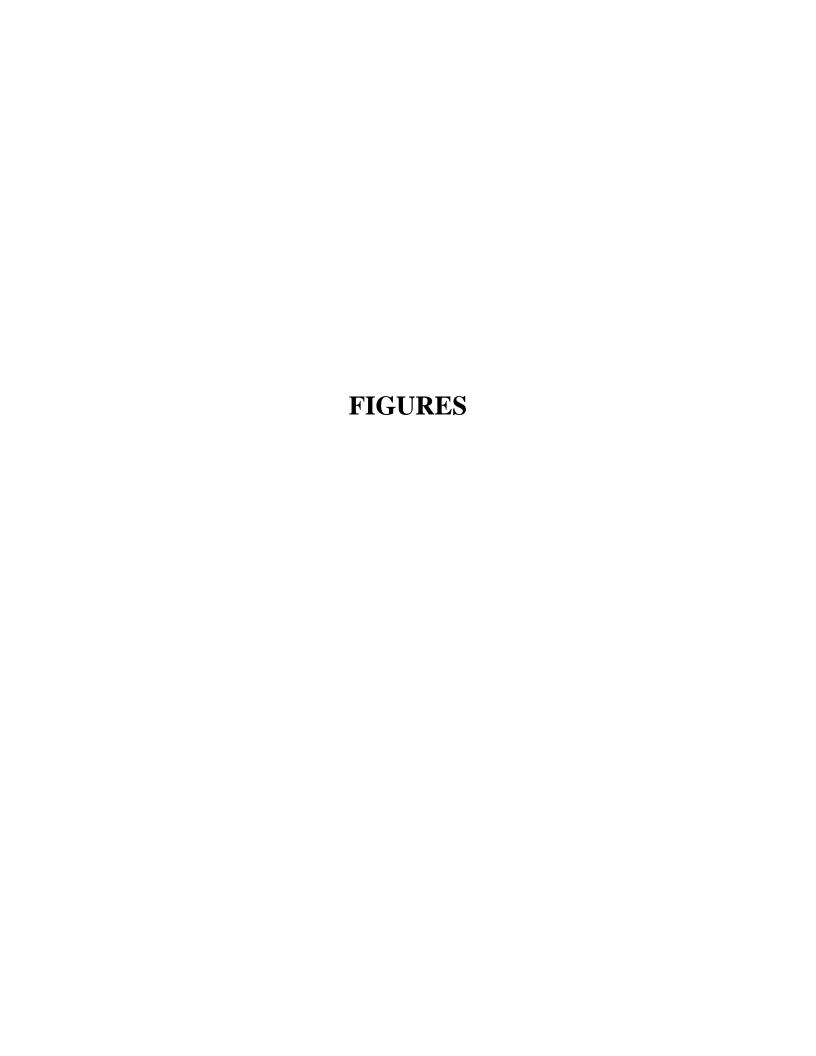
Attachments: Figure 1 – Site Location

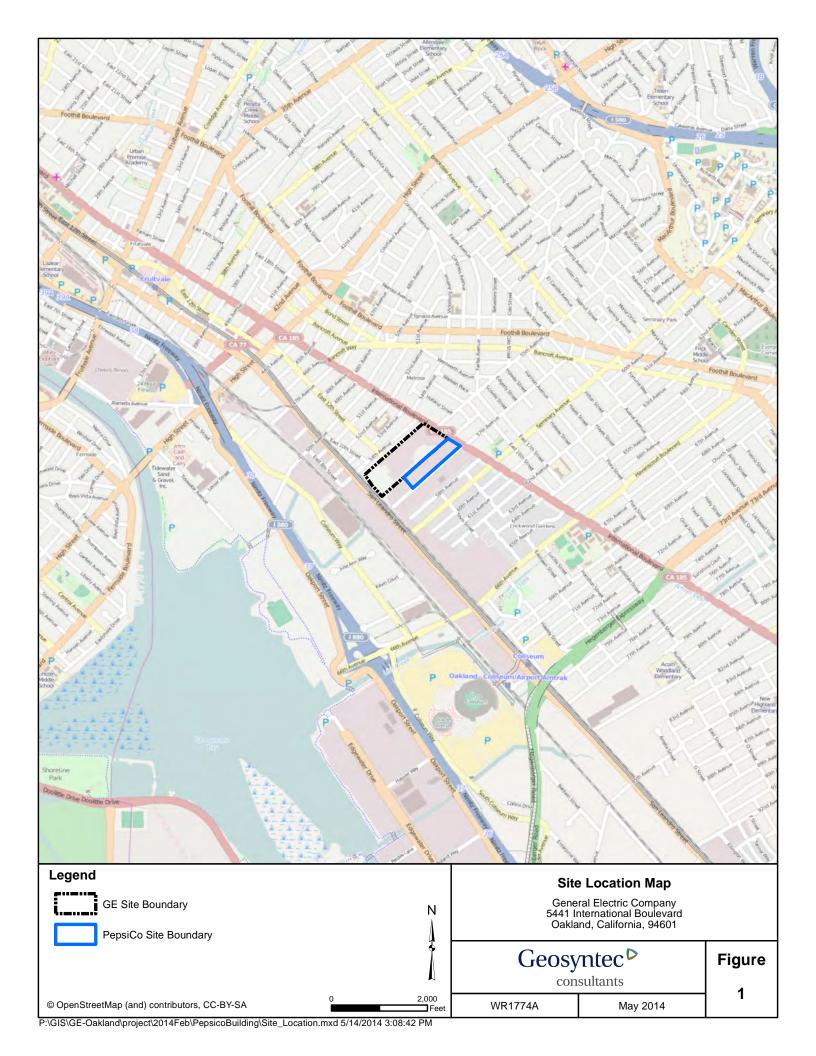
Figure 2 – Summary of PCB Investigation Figure 3 – West Excavation PCB Results Figure 4 – East Excavation PCB Results

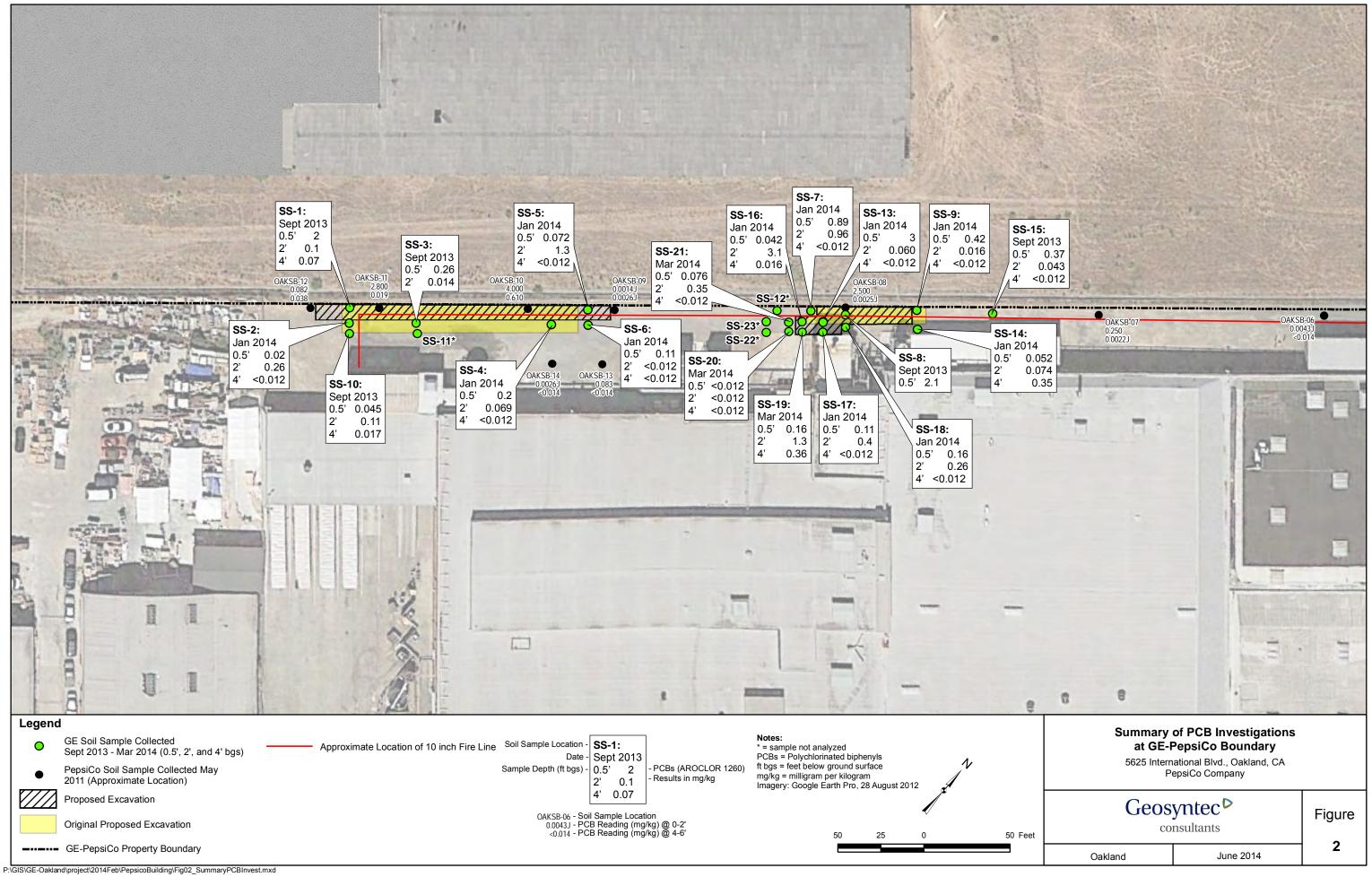
Appendix A - Borehole Permits Appendix B - Laboratory Analytical Appendix C - ProUCL Output Files

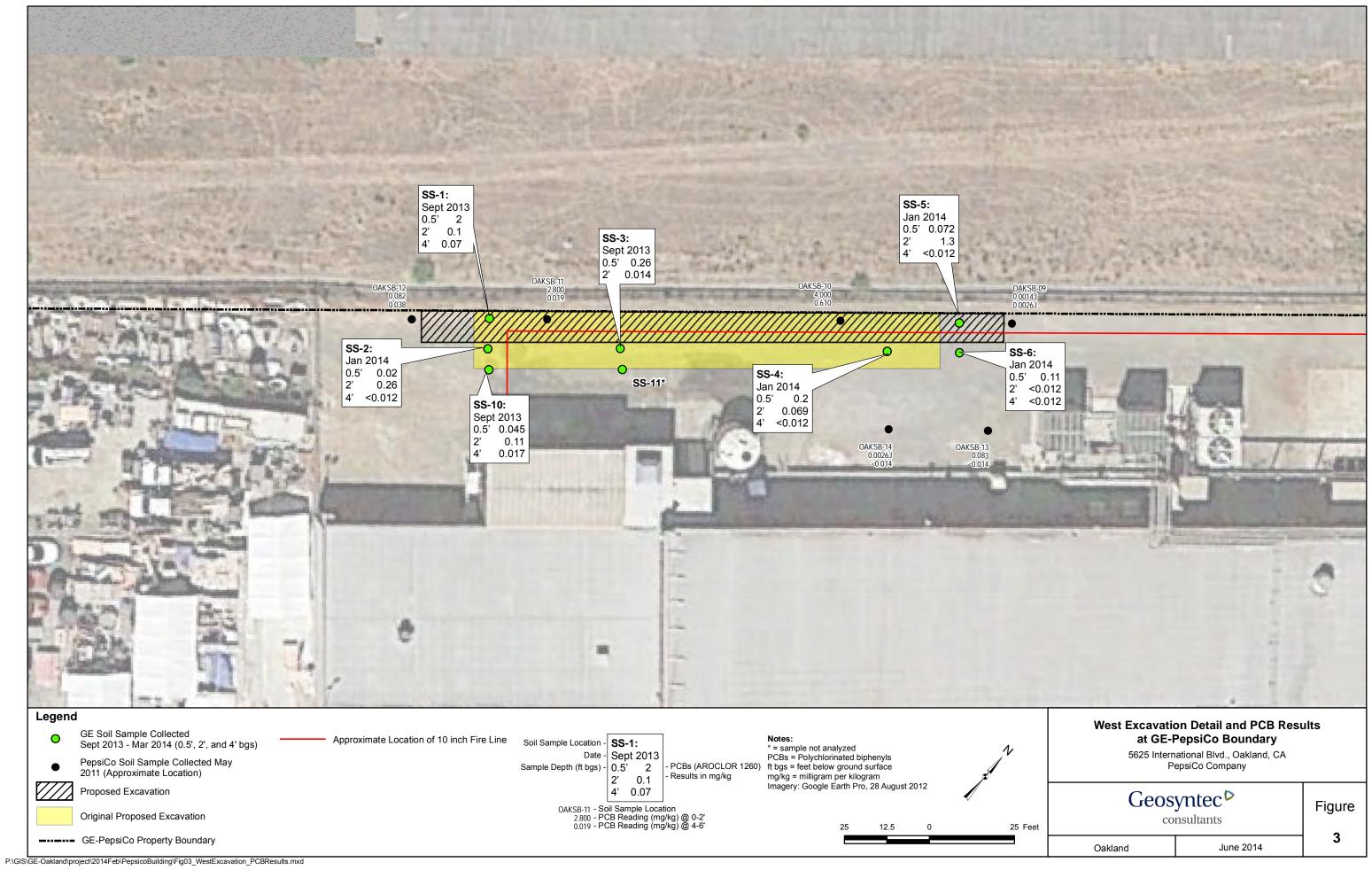
Copies to: Lance Hauer, GE

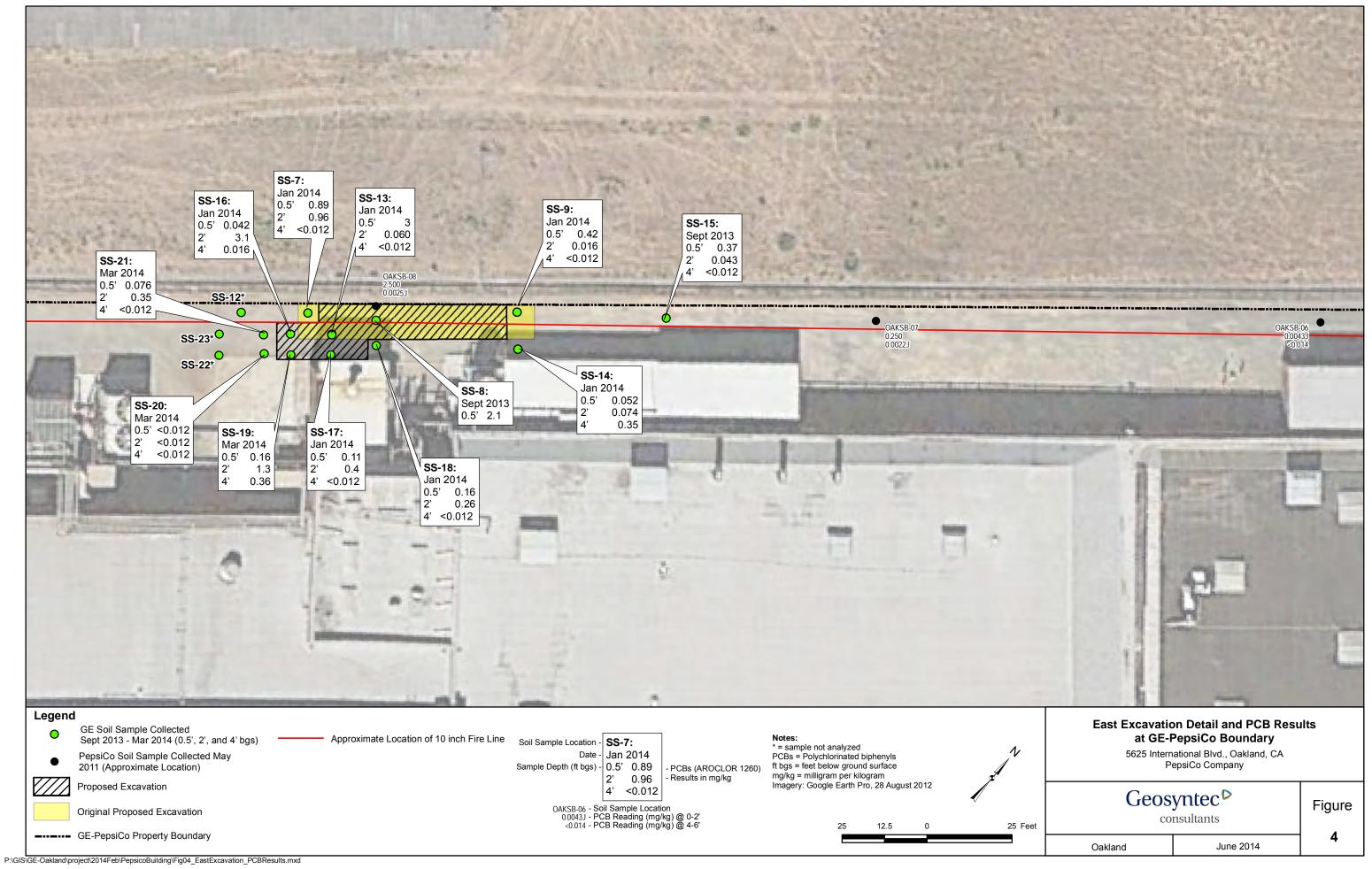
Steve Armann, USEPA Region 9











APPENDIX A BOREHOLE PERMITS



399 Elmhurst Street Hayward, CA 94544-1395 Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 01/14/2014 By jamesy

Permit Numbers: W2014-0019

Permits Valid from 01/23/2014 to 01/24/2014

Application Id: 1389637098498 City of Project Site:Oakland

Site Location: 5625 International Blvd.

Oakland, CA. PepsiCo Facility

Applicant: Geosyntec - Nathan Mullaugh **Phone:** 510-285-2742

595 Market St, Ste 610, San Francisco, CA 94105

Property Owner: PepsiCo PepsiCo S625 international Blvd, Oakland, CA 94621

Client: Lance Hauer Phone: --

nmullaugh@geosyntec.com, King of Prussia, PA 19406

Total Due: \$265.00

Receipt Number: WR2014-0006 Total Amount Paid: \$265.00
Payer Name: Nathan Mullaugh Paid By: MC PAID IN FULL

Works Requesting Permits:

Borehole(s) for Investigation-Environmental/Monitorinig Study - 14 Boreholes

Driller: Gregg Drilling - Lic #: 485065 - Method: DP Work Total: \$265.00

Specifications

 Permit
 Issued Dt
 Expire Dt
 #
 Hole Diam
 Max Depth

 Number
 Boreholes

 W2014 01/14/2014
 04/23/2014
 14
 2.00 in.
 4.00 ft

0019

Specific Work Permit Conditions

- 1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site. The containers shall be clearly labeled to the ownership of the container and labeled hazardous or non-hazardous.
- 2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.
- 3. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.
- 4. Applicant shall contact assigned inspector listed on the top of the permit at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.
- 5. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of \$500.00.
- 6. NOTE:

Under California laws, the owner/operator are responsible for reporting the contamination to the governmental regulatory agencies under Section 25295(a). The owner/operator is liable for civil penalties under Section 25299(a)(4) and criminal penalties under Section 25299(d) for failure to report a leak. The owner/operator is liable for civil penalties under Section 25299(b)(4) for knowing failure to ensure compliance with the law by the operator. These penalty provisions do not apply to a potential buyer.

7. Permit is valid only for the purpose specified herein. No changes in construction procedures, as described on this permit application. Boreholes shall not be converted to monitoring wells, without a permit application process.



399 Elmhurst Street Hayward, CA 94544-1395 Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 03/24/2014 By jamesy

Permit Numbers: W2014-0270

Permits Valid from 03/31/2014 to 04/01/2014

City of Project Site: Alameda Application Id: 1395089035081 Site Location: 5625 International Blvd.

Project Start Date: 03/31/2014 Completion Date: 04/01/2014

Assigned Inspector: Contact Steve Miller at (510) 670-5517 or stevem@acpwa.org

Applicant: Phone: 510-285-2721 Geosyntec Consultants - Ehsan Rasa

1111 Broadway, 6th floor, Oakland, CA 94607

Property Owner: Phone: --Pepsi Co 5625 International Blvd, Oakland, CA 94621

Phone: --Client: Lance Hauer

nmullaugh@geosyntec.com, King of Prussia, King of Prussia, PA 19406

Total Due: \$265.00

\$265.00 Receipt Number: WR2014-0103 Total Amount Paid: **PAID IN FULL**

Payer Name : Geosyntec Consultants Paid By: MC

Works Requesting Permits:

Borehole(s) for Geo Probes-Sampling 24 to 72 hours only - 3 Boreholes

Driller: Gregg Drilling - Lic #: 485065 - Method: DP Work Total: \$265.00

Specifications

Issued Dt **Hole Diam** Permit **Expire Dt** Max Depth Number **Boreholes**

W2014-03/24/2014 06/29/2014 2.00 in. 4.00 ft

0270

Specific Work Permit Conditions

- 1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site. The containers shall be clearly labeled to the ownership of the container and labeled hazardous or non-hazardous.
- 2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.
- 3. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.
- 4. Applicant shall contact Steve Miller for an inspection time at (510) 670-5517 or email to stevem@acpwa.org at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.
- 5. Permittee, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or

waterways or be allowed to move off the property where work is being completed.

6. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of \$500.00.

7. NOTE:

Under California laws, the owner/operator are responsible for reporting the contamination to the governmental regulatory agencies under Section 25295(a). The owner/operator is liable for civil penalties under Section 25299(a)(4) and criminal penalties under Section 25299(d) for failure to report a leak. The owner/operator is liable for civil penalties under Section 25299(b)(4) for knowing failure to ensure compliance with the law by the operator. These penalty provisions do not apply to a potential buyer.

- 8. Prior to any drilling activities onto any public right-of-ways, it shall be the applicants responsibilities to contact and coordinate a Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits required for that City or to the County and follow all City or County Ordinances. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County a Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.
- 9. Permit is valid only for the purpose specified herein. No changes in construction procedures, as described on this permit application. Boreholes shall not be converted to monitoring wells, without a permit application process.

APPENDIX B LABORATORY ANALYTICAL





Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 249803 ANALYTICAL REPORT

Geosyntec Consultants

1111 Broadway

Oakland, CA 94607

Project : WR1774

Location : GE Oakland

Level : II

Sample ID	<u>Lab ID</u>
SS10-0.5	249803-001
SS10-2	249803-002
SS10-4	249803-003
SS15-0.5	249803-004
SS15-2	249803-005
SS15-4	249803-006
SS14-0.5	249803-007
SS13-0.5	249803-008

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: ___

Will S Rice Project Manager will.rice@ctberk.com

Will fice

NELAP # 01107CA

Date: 12/04/2013



CASE NARRATIVE

Laboratory number: 249803

Client: Geosyntec Consultants

Project: WR1774
Location: GE Oakland
Request Date: 10/11/13
Samples Received: 09/23/13

This data package contains sample and QC results for eight soil samples, requested for the above referenced project on 10/11/13. The samples were received cold and intact. Revised 12/04/13 to correct hold time.

PCBs (EPA 8082):

All samples underwent sulfuric acid cleanup using EPA Method 3665A. All samples underwent sulfur cleanup using the copper option in EPA Method 3660B. High responses were observed for Aroclor-1016 and Aroclor-1260 in the CCV analyzed 10/16/13 06:11; affected data was qualified with "b". No other analytical problems were encountered.

249803

Subject: RE: WR1774 - C&T Data (249292)

From: Nate Mullaugh < NMullaugh@Geosyntec.com>

Date: 10/11/2013 9:55 AM

To: "will.rice@ctberk.com" <will.rice@ctberk.com>

Will – can you please run the following samples for PCBs via 8082 and extracted by 3540C:

- · SS10-0.5'
- · SS10-2'
- · SS10-4'
- · SS13-0.5'
- · SS14-0.5'
- · SS15-0.5'
- · SS15-2'
- · SS15-4'

Thanks - Nate

From: Will S Rice [mailto:will.rice@ctberk.com] **Sent:** Thursday, October 10, 2013 6:25 PM

To: Nate Mullaugh

Subject: WR1774 - C&T Data (249292)

Hi Nate,

Please find attached the following files:

- Invoice
- PDF Deliverable
- C&T minimal EDD (249292 barebones.zip)

You may also access this data at https://labline.ctberk.com/ Email was also sent to: CWildman@Geosyntec.com

C&T sends its e-reports via the Internet as Portable Document Format (PDF) files. Reports in this format, when accompanied by a signed cover page, are considered official reports. No hardcopy reports will be sent either by fax or U.S. Postal Service unless otherwise requested. You may distribute your PDF files electronically or as printed hardcopies, as long as they are distributed in their entirety.

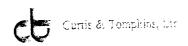
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COOLER RECEIPT CHECKLIST



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Login # 241272 Date Received 4123/13 Number of co- Client Gersyntee Project WR1774A	
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Date Logged in E By (print) E (sign)	
1. Did cooler come with a shipping slip (airbill, etc) Shipping info	
2A. Were custody seals present? TYES (circle) on cooler on sample How many Name Date 2B. Were custody seals intact upon arrival? 3. Were custody papers dry and intact when received?	s ZNO
2B. Were custody seals intact upon arrival?	ZES NO NA
Were custody papers dry and intact when received?	ES NO
4. Were custody papers filled out properly (ink, signed, etc)?	NO
5. Is the project identifiable from custody papers? (If so fill out top of form)	PO NO
6. Indicate the packing in cooler: (if other, describe)	
	_
☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☐ Non	er towels
Cloth material Cardboard Styrofoam Paper	er rowers
7. Temperature documentation: * Notify PM if temperature exceeds 6°C	
Type of ice used: ₩et ☐ Blue/Gel ☐ None Temp(°C)_	
☐ Samples Received on ice & cold without a temperature blank; temp. ta	ken with IR gun
Samples received on ice directly from the field. Cooling process had be	egun
8. Were Method 5035 sampling containers present?	
If YES, what time were they transferred to freezer?	
9. Did all bottles arrive unbroken/unopened?	
10. Are there any missing / extra samples?	
11. Are samples in the appropriate containers for indicated tests?	TES NO
12. Are sample labels present, in good condition and complete?	
13. Do the sample labels agree with custody papers?	MO NO
14. Was sufficient amount of sample sent for tests requested?	NO NO
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14. Was sufficient amount of sample sent for tests requested? 15. Are the samples appropriately preserved? 16. Did you check preservatives for all bottles for each sample? 17. Did you document your preservative check? 18. Did you change the hold time in LIMS for unpreserved VOAs? 19. Did you change the hold time in LIMS for preserved terracores? Y 20. Are bubbles > 6mm absent in VOA samples? Y 21. Was the client contacted concerning this sample delivery?	ES NO TES
14. Was sufficient amount of sample sent for tests requested? 15. Are the samples appropriately preserved? 16. Did you check preservatives for all bottles for each sample? 17. Did you document your preservative check? 18. Did you change the hold time in LIMS for unpreserved VOAs? 19. Did you change the hold time in LIMS for preserved terracores? Y 20. Are bubbles > 6mm absent in VOA samples? Y 21. Was the client contacted concerning this sample delivery? If YES, Who was called? By Da	ES NO MA ES NO MA
14. Was sufficient amount of sample sent for tests requested? 15. Are the samples appropriately preserved? 16. Did you check preservatives for all bottles for each sample? 17. Did you document your preservative check? 18. Did you change the hold time in LIMS for unpreserved VOAs? 19. Did you change the hold time in LIMS for preserved terracores? Y 20. Are bubbles > 6mm absent in VOA samples? Y 21. Was the client contacted concerning this sample delivery?	ES NO MA ES NO MA
14. Was sufficient amount of sample sent for tests requested? 15. Are the samples appropriately preserved? 16. Did you check preservatives for all bottles for each sample? 17. Did you document your preservative check? 18. Did you change the hold time in LIMS for unpreserved VOAs? 19. Did you change the hold time in LIMS for preserved terracores? 20. Are bubbles > 6mm absent in VOA samples? 21. Was the client contacted concerning this sample delivery? If YES, Who was called? By Da COMMENTS	ES NO MA ES NO MA
14. Was sufficient amount of sample sent for tests requested? 15. Are the samples appropriately preserved? 16. Did you check preservatives for all bottles for each sample? 17. Did you document your preservative check? 18. Did you change the hold time in LIMS for unpreserved VOAs? 19. Did you change the hold time in LIMS for preserved terracores? Y 20. Are bubbles > 6mm absent in VOA samples? Y 21. Was the client contacted concerning this sample delivery? If YES, Who was called? By Da	ES NO MA ES NO MA
14. Was sufficient amount of sample sent for tests requested? 15. Are the samples appropriately preserved? 16. Did you check preservatives for all bottles for each sample? 17. Did you document your preservative check? 18. Did you change the hold time in LIMS for unpreserved VOAs? 19. Did you change the hold time in LIMS for preserved terracores? 20. Are bubbles > 6mm absent in VOA samples? 21. Was the client contacted concerning this sample delivery? If YES, Who was called? By Da COMMENTS	ES NO MA ES NO MA

Rev 10, 11/11



	Polychlorinate	ed Biphenyls	(PCBs)	
Lab #: Client: Project#:	249803 Geosyntec Consultants WR1774	Location: Prep: Analysis:	GE Oakland EPA 3550B EPA 8082	
Matrix: Units: Basis: Batch#:	Soil ug/Kg as received 204012	Sampled: Received: Prepared:	09/23/13 09/23/13 10/14/13	

Field ID: SS10-0.5 Diln Fac: 1.000 Type: SAMPLE Analyzed: 10/19/13 Lab ID: 249803-001

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	45	12	

Surrogate	%REC	Limits
TCMX	80	66-142
Decachlorobiphenyl	66	43-139

Field ID: SS10-2 Diln Fac: 1.000
Type: SAMPLE Analyzed: 10/19/13
Lab ID: 249803-002

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	110	12	

Cummogratio	&DEG	Timita	
Surrogate	%REC	Limits	
TCMX	96	66-142	
Decachlorobiphenyl	70	43-139	

DO= Diluted Out ND= Not Detected RL= Reporting Limit Page 1 of 4



	Polychlorinated	Biphenyls (P	CBs)
Lab #: Client: Project#:	249803 Geosyntec Consultants WR1774	Location: Prep: Analysis:	GE Oakland EPA 3550B EPA 8082
Matrix: Units: Basis: Batch#:	Soil ug/Kg as received 204012	Sampled: Received: Prepared:	09/23/13 09/23/13 10/14/13

Field ID: SS10-4 Type: SAMPLE Lab ID: 249803-003 Diln Fac: 1.000 Analyzed: 10/19/13

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	17	12	

Surrogate	%REC	Limits
TCMX	94	66-142
Decachlorobiphenyl	85	43-139

Field ID: SS15-0.5 Diln Fac: 1.000 Type: SAMPLE Analyzed: 10/19/13 Lab ID: 249803-004

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	370	12	

Surrogate	%REC	Limits
TCMX	110	66-142
Decachlorobiphenyl	93	43-139

DO= Diluted Out ND= Not Detected RL= Reporting Limit

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Polychlorinated Biphenyls (PCBs) Lab #: 249803 Location: GE Oakland Client: Geosyntec Consultants Prep: EPA 3550B Analysis: Sampled: EPA 8082 09/23/13 Project#: WR1774 Matrix: Soil 09/23/13 Received: Units: ug/Kg as received Basis: Prepared: 10/14/13 Batch#: 204012

Field ID: SS15-2 Diln Fac: 1.000
Type: SAMPLE Analyzed: 10/19/13
Lab ID: 249803-005

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	43	12	

Surrogate	%REC	Limits	
TCMX	109	66-142	
Decachlorobiphenyl	103	43-139	

Field ID: SS15-4 Diln Fac: 1.000 Type: SAMPLE Analyzed: 10/19/13 Lab ID: 249803-006

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	ND	12	

Surrogate	%REC	Limits
TCMX	102	66-142
Decachlorobiphenyl	105	43-139

DO= Diluted Out ND= Not Detected RL= Reporting Limit Page 3 of 4

2.1



Polychlorinated Biphenyls (PCBs) Lab #: 249803 Location: GE Oakland Client: Geosyntec Consultants EPA 3550B Prep: Analysis: Sampled: EPA 8082 09/23/13 Project#: WR1774 Soil Matrix: Received: 09/23/13 Units: ug/Kg as received Basis: Prepared: 10/14/13 Batch#: 204012

Field ID: SS14-0.5 Diln Fac: 1.000 Type: SAMPLE Analyzed: 10/19/13

Lab ID: 249803-007

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	52	12	

Surrogate	%REC	Limits
TCMX	96	66-142
Decachlorobiphenyl	73	43-139

Field ID: SS13-0.5 Diln Fac: 20.00 Type: SAMPLE Analyzed: 10/22/13

Lab ID: 249803-008

Analyte	Result	RL	
Aroclor-1016	ND	170	
Aroclor-1221	ND	330	
Aroclor-1232	ND	170	
Aroclor-1242	ND	170	
Aroclor-1248	ND	170	
Aroclor-1254	ND	170	
Aroclor-1260	3,000	170	

Surrogate	%REC	Limits
TCMX	DO	66-142
Decachlorobiphenyl	DO	43-139

Type: BLANK Diln Fac: 1.000 Lab ID: QC711755 Analyzed: 10/16/13

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	ND	12	

Surrogate	%REC	Limits
CMX	112	66-142
Decachlorobiphenyl	83	43-139

DO= Diluted Out ND= Not Detected RL= Reporting Limit

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2.1



Batch QC Report

	Polychlorinated	Biphenyls (P	CBs)
Lab #:	249803	Location:	GE Oakland
Client:	Geosyntec Consultants	Prep:	EPA 3550B
Project#:	WR1774	Analysis:	EPA 8082
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC711756	Batch#:	204012
Matrix:	Soil	Prepared:	10/14/13
Units:	ug/Kg	Analyzed:	10/16/13

Analyte	Spiked	Result	%REC	Limits
Aroclor-1016	165.1	191.2 b	116	64-143
Aroclor-1260	165.1	182.9 b	111	58-146

Surrogate	%REC	Limits
TCMX	113	66-142
Decachlorobiphenyl	103	43-139



Batch QC Report

	Polychlorinated	Biphenyls (PC	Bs)
Lab #:	249803	Location:	GE Oakland
Client:	Geosyntec Consultants	Prep:	EPA 3550B
Project#:	WR1774	Analysis:	EPA 8082
Field ID:	ZZZZZZZZZ	Batch#:	204012
MSS Lab ID:	249717-007	Sampled:	10/07/13
Matrix:	Soil	Received:	10/09/13
Units:	ug/Kg	Prepared:	10/14/13
Basis:	as received	Analyzed:	10/16/13
Diln Fac:	1.000		

Type: MS

Lab ID: QC711757

Analyte	MSS Result	Spiked	Result	%REC	Limits
Aroclor-1016	<2.920	164.9	202.2 b	123	58-155
Aroclor-1260	<0.9567	164.9	195.3 b	118	35-159

Surrogate	%REC	Limits
TCMX	118	66-142
Decachlorobiphenyl	116	43-139

Type: MSD Lab ID: QC711758

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aroclor-1016	166.4	179.9 b	108	58-155	13	44
Aroclor-1260	166.4	177.9 b	107	35-159	10	53

Surrogate	%REC	Limits
TCMX	104	66-142
Decachlorobiphenyl	109	43-139

b= See narrative

RPD= Relative Percent Difference

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Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 252455 ANALYTICAL REPORT

Project : WR1774 Geosyntec Consultants

1111 Broadway Location : GE Oakland Oakland, CA 94607

Level : II

Sample ID	<u>Lab ID</u>	Sample ID	<u>Lab ID</u>
SS_2-2	252455-001	SS_14-4	252455-014
SS_2-4	252455-002	SS_9-2	252455-015
SS_4-2	252455-003	SS_9-4	252455-016
SS_4-4	252455-004	SS_16-0.5	252455-017
SS_6-2	252455-005	SS_16-2	252455-018
SS_6-4	252455-006	SS_16-4	252455-019
SS_5-2	252455-007	SS_17-0.5	252455-020
SS_5-4	252455-008	SS_17-2	252455-021
SS_13-2	252455-009	SS_17-4	252455-022
SS_13-4	252455-010	SS_18-0.5	252455-023
SS_7-2	252455-011	SS_18-2	252455-024
SS_7-4	252455-012	SS_18-4	252455-025
SS_14-2	252455-013	EQUIP-BLANK	252455-026

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Date: 01/30/2014

Signature: ___

Will S Rice Project Manager will.rice@ctberk.com

Will Rice

NELAP # 01107CA

1 of 24



CASE NARRATIVE

Laboratory number: 252455

Client: Geosyntec Consultants

Project: WR1774
Location: GE Oakland
Request Date: 01/23/14
Samples Received: 01/23/14

This data package contains sample and QC results for twenty five soil samples and one water sample, requested for the above referenced project on 01/23/14. The samples were received cold and intact.

PCBs (EPA 8082) Water:

All samples underwent sulfuric acid cleanup using EPA Method 3665A. All samples underwent sulfur cleanup using the copper option in EPA Method 3660B. No analytical problems were encountered.

PCBs (EPA 8082) Soil:

All samples underwent sulfuric acid cleanup using EPA Method 3665A. All samples underwent sulfur cleanup using the copper option in EPA Method 3660B. High responses were observed for Aroclor-1016 and Aroclor-1260 in the CCV analyzed 01/28/14 08:44, the CCV analyzed 01/29/14 08:43, and the CCV analyzed 01/29/14 13:16; affected data was qualified with "b". No other analytical problems were encountered.

CHAIN OF CUSTODY

Page 2 of 2

Page 2 of 2 Chain of Custody #																			RECEIVED BY:	(U/) DATÉ: 23 TIME: 16:00	DATE: TIME:	DATE: TIME:
INS Laboratories CAL TESTING LABORATORY C&T LOGIN # 25245	Phone (510) 486-0900 Fax (510) 486-0532	Sampler Ehsan Rusa	Report To: Norte Mullaugh	Company: ් ශිය	2721	Standard Email: EVASA @ Beo Synhac. win	CHEMICAL	Date Iime Collected Collec	8	01/ 1/210	(310 K 11 K	1325 M 1 1 X	1325 X	× >	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	1	×	1420 x	RELINQUISHED BY:	RECEIPT (600)	Cold DATE: TIME:	☐ On Ice ☐ Ambient
CUITIS & TOMPKINS LABORATORY ENVIRONMENTAL ANALYTICAL TESTING LABORATORY IN BUSINGS SINGE 1878	2323 Fifth Street Berkeley, CA 94710	Project No: LURI774 A /06	Project Name: CE Daklawc	Project P. O. No: URT744 / 06	EDD Format: Report Level□ II	Turnaround Time: Rush	Lab Sample ID.	Ö	\$	χ̈́,	3	5.3	S	55. 17.	\$\$	- 1	24 × 6 6 1	26 Edup-BLANK	Notes:	Annitate to 1003, by	Frietie wethod	ENA 3540C

CHAIN OF CUSTODY

	B2 / Extraction	08 A93 ×		K X X			DATE: TIME: DATE: TIME: DATE: TIME:
OCCIDENTIES STABORATORY Business Since 1878 (510) 486-0900 (510) 486-0532 Sampler: Elisan Rasin Report to: Night Mullangle	Company: Georganice V Telephone: 510-285-272, Email: erasa 62 3005 Julie Cera SAMPLING MATRIX PRESERVATIVE	Collected Water # of Co # Acid # of Co	~ ~ ~	11.05 K		1155 K 1 K K 1 K K 1 K K 1 K K 1 K K K 1 K	RELINQUISHED BY: Flance
JITIS & TOMPKINS LOD VIRONMENTAL ANALYTICAL TESTING IN 1961 19710 Phone Fox LURUT 744/06	Project P. O. No: EDD Format: Report Level□ □ □ V 1 Turnaround Time: □ RusH Sample ID.	Date Collect 2 - 2 (/23/	55.2-4 55.4.2	00	\$5.5.2 \$5.5.4 \$5.10.2 \$5.10.4	4	Auntger for PCBs ho RECEIPT FIRBODZ, Extraction Intact Method EPA 3540C Cold

COOLER RECEIPT CHECKLIST



Login # 252455 Date Received 493/14 N	umber of coolers 2
Project GIE-OAK	LAND (WR17744/06
Date Opened 1 3 44 By (print) Image: sign of the sign of	Fing Rankar
1. Did cooler come with a shipping slip (airbill, etc)Shipping info	YES NO
2A. Were custody seals present? YES (circle) on cooler How many Name 2B. Were custody seals intact upon arrival?	on samples NO Date_
3. Were custody papers dry and intact when received? 4. Were custody papers filled out properly (ink, signed, etc)? 5. Is the project identifiable from custody papers? (If so fill out top of 6. Indicate the packing in cooler: (if other, describe)	YES NO N/A YES NO YES NO f form) YES NO
☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☐ Cloth material ☐ Cardboard ☐ Styrofoam 7. Temperature documentation: * Notify PM if temperature exce	☐ None ☐ Paper towels eeds 6°C
Type of ice used: Wet Blue/Gel None	•
☐ Samples Received on ice & cold without a temperature blan	nk; temp, taken with IR oun
Samples received on ice directly from the field. Cooling pro	ocess had begun
8. Were Method 5035 sampling containers present?	o o o o o o o o o o o o o o o o o o o
If IES, what time were they transferred to freezer?	YES NO
9. Did all bottles arrive unbroken/unopened? 10. Are there any missing / extra samples?	MES NO
9. Did all bottles arrive unbroken/unopened? 10. Are there any missing / extra samples? 11. Are samples in the appropriate containers for indicated tests?	
9. Did all bottles arrive unbroken/unopened? 10. Are there any missing / extra samples? 11. Are samples in the appropriate containers for indicated tests? 12. Are sample labels present, in good condition and complete?	YES NO
9. Did all bottles arrive unbroken/unopened? 10. Are there any missing / extra samples? 11. Are samples in the appropriate containers for indicated tests? 12. Are sample labels present, in good condition and complete? 13. Do the sample labels agree with custody papers?	YES NO YES NO YES NO YES NO YES NO
9. Did all bottles arrive unbroken/unopened? 10. Are there any missing / extra samples? 11. Are samples in the appropriate containers for indicated tests? 12. Are sample labels present, in good condition and complete? 13. Do the sample labels agree with custody papers? 14. Was sufficient amount of sample sent for tests requested? 15. Are the samples appropriately preserved?	YES NO
9. Did all bottles arrive unbroken/unopened? 10. Are there any missing / extra samples? 11. Are samples in the appropriate containers for indicated tests? 12. Are sample labels present, in good condition and complete? 13. Do the sample labels agree with custody papers? 14. Was sufficient amount of sample sent for tests requested? 15. Are the samples appropriately preserved? 16. Did you check preservatives for all bottles for each sample?	YES NO N/A
9. Did all bottles arrive unbroken/unopened? 10. Are there any missing / extra samples? 11. Are samples in the appropriate containers for indicated tests? 12. Are sample labels present, in good condition and complete? 13. Do the sample labels agree with custody papers? 14. Was sufficient amount of sample sent for tests requested? 15. Are the samples appropriately preserved? 16. Did you check preservatives for all bottles for each sample? 17. Did you document your preservative check?	YES NO
9. Did all bottles arrive unbroken/unopened? 10. Are there any missing / extra samples? 11. Are samples in the appropriate containers for indicated tests? 12. Are sample labels present, in good condition and complete? 13. Do the sample labels agree with custody papers? 14. Was sufficient amount of sample sent for tests requested? 15. Are the samples appropriately preserved? 16. Did you check preservatives for all bottles for each sample? 17. Did you document your preservative check? 18. Did you change the hold time in LIMS for unpreserved VOAca	YES NO N/A YES NO N/A YES NO N/A
9. Did all bottles arrive unbroken/unopened? 10. Are there any missing / extra samples? 11. Are samples in the appropriate containers for indicated tests? 12. Are sample labels present, in good condition and complete? 13. Do the sample labels agree with custody papers? 14. Was sufficient amount of sample sent for tests requested? 15. Are the samples appropriately preserved? 16. Did you check preservatives for all bottles for each sample? 17. Did you document your preservative check? 18. Did you change the hold time in LIMS for preserved VOAs? 19. Did you change the hold time in LIMS for preserved towards.	YES NO
9. Did all bottles arrive unbroken/unopened? 10. Are there any missing / extra samples? 11. Are samples in the appropriate containers for indicated tests? 12. Are sample labels present, in good condition and complete? 13. Do the sample labels agree with custody papers? 14. Was sufficient amount of sample sent for tests requested? 15. Are the samples appropriately preserved? 16. Did you check preservatives for all bottles for each sample? 17. Did you document your preservative check? 18. Did you change the hold time in LIMS for unpreserved VOAs? 19. Did you change the hold time in LIMS for preserved terracores? 20. Are bubbles > 6mm absent in VOA assembles.	YES NO
9. Did all bottles arrive unbroken/unopened? 10. Are there any missing / extra samples? 11. Are samples in the appropriate containers for indicated tests? 12. Are sample labels present, in good condition and complete? 13. Do the sample labels agree with custody papers? 14. Was sufficient amount of sample sent for tests requested? 15. Are the samples appropriately preserved? 16. Did you check preservatives for all bottles for each sample? 17. Did you document your preservative check? 18. Did you change the hold time in LIMS for unpreserved VOAs? 19. Did you change the hold time in LIMS for preserved terracores? 20. Are bubbles > 6mm absent in VOA samples? 21. Was the client contacted concerning this sample delivery?	YES NO N/A
9. Did all bottles arrive unbroken/unopened? 10. Are there any missing / extra samples? 11. Are samples in the appropriate containers for indicated tests? 12. Are sample labels present, in good condition and complete? 13. Do the sample labels agree with custody papers? 14. Was sufficient amount of sample sent for tests requested? 15. Are the samples appropriately preserved? 16. Did you check preservatives for all bottles for each sample? 17. Did you document your preservative check? 18. Did you change the hold time in LIMS for unpreserved VOAs? 19. Did you change the hold time in LIMS for preserved terracores? 20. Are bubbles > 6mm absent in VOA samples? 21. Was the client contacted concerning this sample delivery? If YES, Who was called? 18. By	YES NO N/A
9. Did all bottles arrive unbroken/unopened? 10. Are there any missing / extra samples? 11. Are samples in the appropriate containers for indicated tests? 12. Are sample labels present, in good condition and complete? 13. Do the sample labels agree with custody papers? 14. Was sufficient amount of sample sent for tests requested? 15. Are the samples appropriately preserved? 16. Did you check preservatives for all bottles for each sample? 17. Did you document your preservative check? 18. Did you change the hold time in LIMS for unpreserved VOAs? 19. Did you change the hold time in LIMS for preserved terracores? 20. Are bubbles > 6mm absent in VOA samples? 21. Was the client contacted concerning this sample delivery? If YES, Who was called? 18. By	YES NO N/A
9. Did all bottles arrive unbroken/unopened? 10. Are there any missing / extra samples? 11. Are samples in the appropriate containers for indicated tests? 12. Are sample labels present, in good condition and complete? 13. Do the sample labels agree with custody papers? 14. Was sufficient amount of sample sent for tests requested? 15. Are the samples appropriately preserved? 16. Did you check preservatives for all bottles for each sample? 17. Did you document your preservative check? 18. Did you change the hold time in LIMS for unpreserved VOAs? 19. Did you change the hold time in LIMS for preserved terracores? 20. Are bubbles > 6mm absent in VOA samples? 21. Was the client contacted concerning this sample delivery? 22. If YES, Who was called? 23. COMMENTS	YES NO
9. Did all bottles arrive unbroken/unopened? 10. Are there any missing / extra samples? 11. Are samples in the appropriate containers for indicated tests? 12. Are sample labels present, in good condition and complete? 13. Do the sample labels agree with custody papers? 14. Was sufficient amount of sample sent for tests requested? 15. Are the samples appropriately preserved? 16. Did you check preservatives for all bottles for each sample? 17. Did you document your preservative check? 18. Did you change the hold time in LIMS for unpreserved VOAs? 19. Did you change the hold time in LIMS for preserved terracores? 20. Are bubbles > 6mm absent in VOA samples? 21. Was the client contacted concerning this sample delivery? 22. If YES, Who was called? 23. COMMENTS	YES NO YE
9. Did all bottles arrive unbroken/unopened? 10. Are there any missing / extra samples? 11. Are samples in the appropriate containers for indicated tests? 12. Are sample labels present, in good condition and complete? 13. Do the sample labels agree with custody papers? 14. Was sufficient amount of sample sent for tests requested? 15. Are the samples appropriately preserved? 16. Did you check preservatives for all bottles for each sample? 17. Did you document your preservative check? 18. Did you change the hold time in LIMS for unpreserved VOAs? 19. Did you change the hold time in LIMS for preserved terracores? 20. Are bubbles > 6mm absent in VOA samples? 21. Was the client contacted concerning this sample delivery? 22. If YES, Who was called? 23. COMMENTS	YES NO



	Polychlorinated	Biphenyls	(PCBs)
Lab #:	252455	Location:	GE Oakland
Client:	Geosyntec Consultants	Prep:	EPA 3520C
Project#:	WR1774	Analysis:	EPA 8082
Field ID:	EQUIP-BLANK	Sampled:	01/23/14
Matrix:	Water	Received:	01/23/14
Units:	ug/L	Prepared:	01/28/14
Diln Fac:	1.000	Analyzed:	01/29/14
Batch#:	207488		

Type: SAMPLE Lab ID: 252455-026

Analyte	Result	RL	
Aroclor-1016	ND	0.49	
Aroclor-1221	ND	0.98	
Aroclor-1232	ND	0.49	
Aroclor-1242	ND	0.49	
Aroclor-1248	ND	0.49	
Aroclor-1254	ND	0.49	
Aroclor-1260	ND	0.49	

Surrogate	%REC	Limits
TCMX	82	39-122
Decachlorobiphenyl	72	27-120

Type: BLANK Lab ID: QC725684

Analyte	Result	RL	
Aroclor-1016	ND	0.50	
Aroclor-1221	ND	1.0	
Aroclor-1232	ND	0.50	
Aroclor-1242	ND	0.50	
Aroclor-1248	ND	0.50	
Aroclor-1254	ND	0.50	
Aroclor-1260	ND	0.50	

Surrogate	%REC	Limits
TCMX	114	39-122
Decachlorobiphenyl 1		27-120

ND= Not Detected RL= Reporting Limit

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7.0



	Polychlorinat	ced Biphenyls (PCBs)	
Lab #:	252455	Location:	GE Oakland	
Client:	Geosyntec Consultants	Prep:	EPA 3520C	
Project#:	WR1774	Analysis:	EPA 8082	
Matrix:	Water	Batch#:	207488	
Units:	ug/L	Prepared:	01/28/14	
Diln Fac:	1.000	Analyzed:	01/29/14	

Type: BS Lab ID: QC725685

Analyte	Spiked	Result	%REC	Limits
Aroclor-1016	5.000	4.633	93	60-131
Aroclor-1260	5.000	4.576	92	50-135

Surrogate	%REC	Limits
TCMX	79	39-122
Decachlorobiphenyl	84	27-120

Type: BSD Lab ID: QC725686

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aroclor-1016	5.000	4.510	90	60-131	3	37
Aroclor-1260	5.000	4.547	91	50-135	1	51

	Surrogate	%REC	Limits
TCMX	= === • J	82	39-122
Decachlor	lorobiphenyl	83	27-120



	Polychlorina	ted Biphenyls (PCBs)	
Lab #:	252455	Location:	GE Oakland	
Client:	Geosyntec Consultants	Prep:	EPA 3550B	
Project#:	WR1774	Analysis:	EPA 8082	
Matrix:	Soil	Sampled:	01/23/14	
Units:	ug/Kg	Received:	01/23/14	
Basis:	as received			

Field ID: SS_2-2 Batch#: 207403
Type: SAMPLE Prepared: 01/24/14
Lab ID: 252455-001 Analyzed: 01/27/14
Diln Fac: 1.000

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	260	12	

Surrogate	%REC	Limits
TCMX	92	60-140
Decachlorobiphenyl	49	36-133

Field ID: SS_2-4 Batch#: 207403
Type: SAMPLE Prepared: 01/24/14
Lab ID: 252455-002 Analyzed: 01/26/14
Diln Fac: 1.000

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	ND	12	

Surrogate	%REC	Limits	
TCMX	112	60-140	
Decachlorobiphenyl	82	36-133	

ND= Not Detected RL= Reporting Limit Page 1 of 13



Polychlorinated Biphenyls (PCBs) Lab #: 252455 Location: GE Oakland Client: Geosyntec Consultants Prep: EPA 3550B Analysis: Sampled: EPA 8082 01/23/14 Project#: WR1774 Soil Matrix: 01/23/14 Units: ug/Kg Received: Basis: as received

Field ID: SS 4-2 207403 Batch#: SAMPLE 252455-003 01/24/14 01/27/14 Type: Prepared: Lab ID: Analyzed: Diln Fac: 1.000

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	69	12	

Surrogate	%REC	Limits
TCMX	108	60-140
Decachlorobiphenyl	48	36-133

Field ID: SS 4-4 Batch#: 207403 01/24/14 01/26/14 Type: Prepared: SAMPLE Lab ID: 252455-004 Analyzed: Diln Fac: 1.000

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	ND	12	

Surrogate	%REC	Limits
TCMX	128	60-140
Decachlorobiphenvl	89	36-133

ND= Not Detected RL= Reporting Limit

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	Polychlorina	ted Biphenyls (PCBs)	
Lab #: Client: Project#:	252455 Geosyntec Consultants WR1774	Location: Prep: Analysis:	GE Oakland EPA 3550B EPA 8082	
Matrix: Units: Basis:	Soil ug/Kg as received	Sampled: Received:	01/23/14 01/23/14	

Field ID: SS_6-2 Batch#: 207403
Type: SAMPLE Prepared: 01/24/14
Lab ID: 252455-005 Analyzed: 01/26/14
Diln Fac: 1.000

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	ND	12	

Surrogate	%REC	Limits
TCMX	128	60-140
Decachlorobiphenyl	91	36-133

Field ID: SS_6-4 Batch#: 207403
Type: SAMPLE Prepared: 01/24/14
Lab ID: 252455-006 Analyzed: 01/26/14
Diln Fac: 1.000

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	ND	12	

Surrogate	%REC	Limits
TCMX	114	60-140
Decachlorobiphenyl	90	36-133

ND= Not Detected RL= Reporting Limit Page 3 of 13



	Polychlorina	ted Biphenyls (PCBs)	
Lab #: Client: Project#:	252455 Geosyntec Consultants WR1774	Location: Prep: Analysis:	GE Oakland EPA 3550B EPA 8082	
Matrix: Units: Basis:	Soil ug/Kg as received	Sampled: Received:	01/23/14 01/23/14	

Field ID: SS_5-2 Batch#: 207403
Type: SAMPLE Prepared: 01/24/14
Lab ID: 252455-007 Analyzed: 01/27/14
Diln Fac: 5.000

Analyte	Result	RL	
Aroclor-1016	ND	42	
Aroclor-1221	ND	83	
Aroclor-1232	ND	42	
Aroclor-1242	ND	42	
Aroclor-1248	ND	42	
Aroclor-1254	ND	42	
Aroclor-1260	1,300	42	

Surrogate	%REC	Limits
TCMX	136	60-140
Decachlorobiphenyl	90	36-133

Field ID: SS_5-4 Batch#: 207403
Type: SAMPLE Prepared: 01/24/14
Lab ID: 252455-008 Analyzed: 01/26/14
Diln Fac: 1.000

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	ND	12	

Surrogate	%REC	Limits
TCMX	126	60-140
Decachlorobiphenvl	97	36-133

ND= Not Detected RL= Reporting Limit Page 4 of 13



	Polychlorina	ted Biphenyls (PCBs)	
Lab #: Client: Project#:	252455 Geosyntec Consultants WR1774	Location: Prep: Analysis:	GE Oakland EPA 3550B EPA 8082	
Matrix: Units: Basis:	Soil ug/Kg as received	Sampled: Received:	01/23/14 01/23/14	

SS 13-2 Field ID: Batch#: 207403 SAMPLE 252455-009 1.000 Prepared:
Analyzed: Type: Lab ID: 01/24/14 01/27/14 Diln Fac:

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	60	12	

Surrogate	%REC	Limits
TCMX	81	60-140
Decachlorobiphenyl	63	36-133

Field ID: Type: Lab ID: SS_13-4 Batch#: 207403 SAMPLE 252455-010 Prepared:
Analyzed: 01/24/14 01/26/14 Diln Fac: 1.000

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	ND	12	

Surrogate	%REC	Limits
TCMX	123	60-140
Decachlorobiphenvl	96	36-133

ND= Not Detected RL= Reporting Limit

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	Polychlorina	ted Biphenyls (PCBs)	
Lab #: Client: Project#:	252455 Geosyntec Consultants WR1774	Location: Prep: Analysis:	GE Oakland EPA 3550B EPA 8082	
Matrix: Units: Basis:	Soil ug/Kg as received	Sampled: Received:	01/23/14 01/23/14	

Field ID: SS_7-2 Batch#: 207403
Type: SAMPLE Prepared: 01/24/14
Lab ID: 252455-011 Analyzed: 01/27/14
Diln Fac: 3.000

Analyte	Result	RL	
Aroclor-1016	ND	25	
Aroclor-1221	ND	49	
Aroclor-1232	ND	25	
Aroclor-1242	ND	25	
Aroclor-1248	ND	25	
Aroclor-1254	ND	25	
Aroclor-1260	960	25	

Surrogate	%REC	Limits
TCMX	114	60-140
Decachlorobiphenyl	72	36-133

Field ID: SS_7-4 Batch#: 207403
Type: SAMPLE Prepared: 01/24/14
Lab ID: 252455-012 Analyzed: 01/26/14
Diln Fac: 1.000

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	ND	12	

Surrogate	%REC	Limits
TCMX	113	60-140
Decachlorobiphenyl	101	36-133

ND= Not Detected RL= Reporting Limit Page 6 of 13



	Polychlorina	ted Biphenyls (PCBs)	
Lab #: Client: Project#:	252455 Geosyntec Consultants WR1774	Location: Prep: Analysis:	GE Oakland EPA 3550B EPA 8082	
Matrix: Units: Basis:	Soil ug/Kg as received	Sampled: Received:	01/23/14 01/23/14	

Field ID: SS_14-2 Batch#: 207403
Type: SAMPLE Prepared: 01/24/14
Lab ID: 252455-013 Analyzed: 01/27/14
Diln Fac: 1.000

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	74	12	

Surrogate	%REC	Limits
TCMX	77	60-140
Decachlorobiphenyl	44	36-133

Field ID: SS_14-4 Batch#: 207403
Type: SAMPLE Prepared: 01/24/14
Lab ID: 252455-014 Analyzed: 01/27/14
Diln Fac: 1.000

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	350	12	

Surrogate	%REC	Limits
TCMX	93	60-140
Decachlorobiphenyl	61	36-133

ND= Not Detected RL= Reporting Limit Page 7 of 13



	Polychlorina	ted Biphenyls (PCBs)	
Lab #: Client: Project#:	252455 Geosyntec Consultants WR1774	Location: Prep: Analysis:	GE Oakland EPA 3550B EPA 8082	
Matrix: Units: Basis:	Soil ug/Kg as received	Sampled: Received:	01/23/14 01/23/14	

SS 9-2 Field ID: Batch#: 207403 SAMPLE 252455-015 1.000 Prepared: Analyzed: Type: Lab ID: 01/24/14 01/27/14 Diln Fac:

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	16	12	

Surrogate	%REC	Limits
TCMX	128	60-140
Decachlorobiphenyl	92	36-133

Field ID: Type: Lab ID: SS 9-4 207403 Batch#: SAMPLE 252455-016 Prepared: Analyzed: 01/24/14 01/27/14 Diln Fac: 1.000

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	ND	12	

Surrogate	%REC	Limits
TCMX	127	60-140
Decachlorobiphenvl	105	36-133

ND= Not Detected RL= Reporting Limit

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	Polychlorina	ted Biphenyls (PCBs)	
Lab #: Client: Project#:	252455 Geosyntec Consultants WR1774	Location: Prep: Analysis:	GE Oakland EPA 3550B EPA 8082	
Matrix: Units: Basis:	Soil ug/Kg as received	Sampled: Received:	01/23/14 01/23/14	

Field ID: SS_16-0.5 Batch#: 207403
Type: SAMPLE Prepared: 01/24/14
Lab ID: 252455-017 Analyzed: 01/27/14
Diln Fac: 1.000

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	42	12	

Surrogate	%REC	Limits	
TCMX	74	60-140	
Decachlorobiphenyl	42	36-133	

Field ID: SS_16-2 Batch#: 207403
Type: SAMPLE Prepared: 01/24/14
Lab ID: 252455-018 Analyzed: 01/28/14
Diln Fac: 5.000

Analyte	Result	RL	
Aroclor-1016	ND	42	
Aroclor-1221	ND	83	
Aroclor-1232	ND	42	
Aroclor-1242	ND	42	
Aroclor-1248	ND	42	
Aroclor-1254	ND	42	
Aroclor-1260	3,100	42	

Surrogate	%REC	Limits
TCMX	81	60-140
Decachlorobiphenyl	77	36-133

ND= Not Detected RL= Reporting Limit Page 9 of 13



	Polychlorina	ted Biphenyls (PCBs)	
Lab #: Client: Project#:	252455 Geosyntec Consultants WR1774	Location: Prep: Analysis:	GE Oakland EPA 3550B EPA 8082	
Matrix: Units: Basis:	Soil ug/Kg as received	Sampled: Received:	01/23/14 01/23/14	

Field ID: SS_16-4 Batch#: 207403
Type: SAMPLE Prepared: 01/24/14
Lab ID: 252455-019 Analyzed: 01/28/14
Diln Fac: 1.000

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	16	12	

Surrogate	%REC	Limits
TCMX	94	60-140
Decachlorobiphenyl	83	36-133

Field ID: SS_17-0.5 Batch#: 207403
Type: SAMPLE Prepared: 01/24/14
Lab ID: 252455-020 Analyzed: 01/28/14
Diln Fac: 1.000

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	110	12	

Surrogate	%REC	Limits
TCMX	86	60-140
Decachlorobiphenyl	43	36-133

ND= Not Detected RL= Reporting Limit Page 10 of 13



	Polychlorina	ted Biphenyls (PCBs)	
Lab #: Client: Project#:	252455 Geosyntec Consultants WR1774	Location: Prep: Analysis:	GE Oakland EPA 3550B EPA 8082	
Matrix: Units: Basis:	Soil ug/Kg as received	Sampled: Received:	01/23/14 01/23/14	

Field ID: SS_17-2 Batch#: 207458
Type: SAMPLE Prepared: 01/27/14
Lab ID: 252455-021 Analyzed: 01/28/14
Diln Fac: 1.000

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	400	12	

Surrogate	%REC	Limits
TCMX	61	60-140
Decachlorobiphenyl	58	36-133

Field ID: SS_17-4 Batch#: 207458
Type: SAMPLE Prepared: 01/27/14
Lab ID: 252455-022 Analyzed: 01/28/14
Diln Fac: 1.000

Analyte Result RL Aroclor-1016 Aroclor-1221 Aroclor-1232 12 24 ND ND 12 12 ND Aroclor-1242 ND Aroclor-1248 Aroclor-1254 12 ND 12 ND Aroclor-1260 ND

	Surrogate	%REC	Limits
T	CMX	76	60-140
	ecachlorobiphenvl	73	36-133

ND= Not Detected RL= Reporting Limit Page 11 of 13



	Polychlorina	ted Biphenyls (PCBs)	
Lab #: Client: Project#:	252455 Geosyntec Consultants WR1774	Location: Prep: Analysis:	GE Oakland EPA 3550B EPA 8082	
Matrix: Units: Basis:	Soil ug/Kg as received	Sampled: Received:	01/23/14 01/23/14	

SS 18-0.5 Field ID: Batch#: 207458 SAMPLE 252455-023 1.000 Prepared:
Analyzed: 01/27/14 01/28/14 Type: Lab ID: Diln Fac:

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	160	12	

Surrogate	%REC	Limits
TCMX	81	60-140
Decachlorobiphenyl	37	36-133

Field ID: Type: Lab ID: SS_18-2 Batch#: 207458 SAMPLE 252455-024 Prepared: Analyzed: 01/27/14 01/28/14 Diln Fac: 1.000

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	260	12	

Surrogate	%REC	Limits
TCMX	69	60-140
Decachlorobiphenyl	55	36-133

ND= Not Detected RL= Reporting Limit

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Polychlorinated Biphenyls (PCBs) Lab #: 252455 GE Oakland Location: Client: Geosyntec Consultants EPA 3550B Prep: Analysis: Sampled: EPA 8082 01/23/14 Project#: WR1774 Matrix: Soil 01/23/14 Units: ug/Kg Received: Basis: as received

Field ID: SS_18-4 Batch#: 207458
Type: SAMPLE Prepared: 01/27/14
Lab ID: 252455-025 Analyzed: 01/28/14
Diln Fac: 1.000

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	ND	12	

Surrogate	%REC	Limits
TCMX	102	60-140
Decachlorobiphenyl	75	36-133

Type: BLANK Batch#: 207403 Lab ID: QC725349 Prepared: 01/24/14 Diln Fac: 1.000 Analyzed: 01/26/14

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	ND	12	

Surrogate	%REC	Limits
TCMX	111	60-140
Decachlorobiphenyl	91	36-133

Type: BLANK Batch#: 207458
Lab ID: QC725579 Prepared: 01/27/14
Diln Fac: 1.000 Analyzed: 01/28/14

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	ND	12	

Surrogate	%REC	Limits
TCMX	117	60-140
Decachlorobiphenyl	77	36-133

ND= Not Detected RL= Reporting Limit

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	Polychlorinated	Biphenyls	(PCBs)
Lab #:	252455	Location:	GE Oakland
Client:	Geosyntec Consultants	Prep:	EPA 3550B
Project#:	WR1774	Analysis:	EPA 8082
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC725350	Batch#:	207403
Matrix:	Soil	Prepared:	01/24/14
Units:	ug/Kg	Analyzed:	01/29/14

Analyte	Spiked	Result	%REC	Limits
Aroclor-1016	164.9	157.7 b	96	58-144
Aroclor-1260	164.9	144.8	88	55-146

Surrogate	%REC	Limits
TCMX	103	60-140
Decachlorobiphenyl	68	36-133



	Polychlorinated	Biphenyls (PC	Bs)
Lab #:	252455	Location:	GE Oakland
Client:	Geosyntec Consultants	Prep:	EPA 3550B
Project#:	WR1774	Analysis:	EPA 8082
Field ID:	SS_2-2	Batch#:	207403
MSS Lab ID:	252455-001	Sampled:	01/23/14
Matrix:	Soil	Received:	01/23/14
Units:	ug/Kg	Prepared:	01/24/14
Basis:	as received	Analyzed:	01/29/14
Diln Fac:	1.000		

Type: MS

Lab ID: QC725351

Analyte	MSS Result	Spiked	Result	%REC	Limits
Aroclor-1016	<2.938	165.1	167.2 b	101	51-155
Aroclor-1260	263.2	165.1	461.2 b	120	38-155

Surrogate	%REC	Limits
TCMX	97	60-140
Decachlorobiphenyl	55	36-133

Type: MSD Lab ID: QC725352

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aroclor-1016	165.8	158.7 b	96	51-155	6	38
Aroclor-1260	165.8	471.6 b	126	38-155	2	55

Surrogate	%REC	Limits	
TCMX	84	60-140	
Decachlorobiphenyl	47	36-133	

b= See narrative

RPD= Relative Percent Difference

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	Polychlorinated	Biphenyls (E	PCBs)
Lab #:	252455	Location:	GE Oakland
Client:	Geosyntec Consultants	Prep:	EPA 3550B
Project#:	WR1774	Analysis:	EPA 8082
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC725580	Batch#:	207458
Matrix:	Soil	Prepared:	01/27/14
Units:	ug/Kg	Analyzed:	01/28/14

Analyte	Spiked	Result	%REC	Limits
Aroclor-1016	166.6	197.2 b	118	58-144
Aroclor-1260	166.6	189.6	114	55-146



	Polychlorinated	Biphenyls (PC	Bs)
Lab #:	252455	Location:	GE Oakland
Client:	Geosyntec Consultants	Prep:	EPA 3550B
Project#:	WR1774	Analysis:	EPA 8082
Field ID:	ZZZZZZZZZ	Batch#:	207458
MSS Lab ID:	252516-001	Sampled:	01/24/14
Matrix:	Soil	Received:	01/24/14
Units:	ug/Kg	Prepared:	01/27/14
Basis:	as received	Analyzed:	01/29/14
Diln Fac:	1.000		

Type: MS

Lab ID: QC725581

Analyte	MSS Result	Spiked	Result	%REC	Limits
Aroclor-1016	<2.913	165.3	162.8	98	51-155
Aroclor-1260	<1.905	165.3	150.0	91	38-155

Surrogate	%REC	Limits
TCMX	85	60-140
Decachlorobiphenyl	77	36-133

Type: MSD Lab ID: QC725582

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aroclor-1016	166.5	159.6	96	51-155	3	38
Aroclor-1260	166.5	158.7	95	38-155	5	55

Surrogate	%REC	Limits	
TCMX	85	60-140	
Decachlorobiphenyl	83	36-133	





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Laboratory Job Number 255150 ANALYTICAL REPORT

Geosyntec Consultants

1111 Broadway

Oakland, CA 94607

Project : WR1774

Location : GE Oakland

Level : II

Sample ID	<u>Lab ID</u>
SS-19-0.5	$25\overline{5150-001}$
SS-19-2	255150-002
SS-19-4	255150-003
SS-20-0.5	255150-004
SS-20-2	255150-005
SS-20-4	255150-006
SS-21-0.5	255150-007
SS-21-2	255150-008
SS-21-4	255150-009
SS-22-0.5	255150-010
SS-22-2	255150-011
SS-22-4	255150-012
SS-23-0.5	255150-013
SS-23-2	255150-014
SS-23-4	255150-015
EQUIP-BLANK	255150-016

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Will Rice Signature:

Will S Rice Project Manager will.rice@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Date: 04/04/2014



CASE NARRATIVE

Laboratory number: 255150

Client: Geosyntec Consultants

Project: WR1774
Location: GE Oakland
Request Date: 03/31/14
Samples Received: 03/31/14

This data package contains sample and QC results for nine soil samples, requested for the above referenced project on 03/31/14. The samples were received cold and intact.

PCBs (EPA 8082):

All samples underwent sulfuric acid cleanup using EPA Method 3665A. All samples underwent sulfur cleanup using the copper option in EPA Method 3660B. Matrix spikes were not performed for this analysis in batch 209623 due to insufficient sample amount. No other analytical problems were encountered.

CHAIN OF CUSTODY
Curtis & Tompkins Laboratories

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Chain of Custody # ANALYTICAL REQUEST						d 70H		*	× ;	× ×	~	\(\frac{1}{2}\)	×	4	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \				RECEIVED BY;	1:01 fat for Josie Time. 1.01	E: DATE: TIME:	E: DATE: TIME:	
Ordiories STABORATORY In Business Since 1878 Cat Login # 255450	486-0900 486-0532	ENSAN K	To: Nate Mulliamon	30, 285, 27.		MATRIX PRESERVATIVE	None HNO3 HNO3 HCI HCI Solid Solid	9:45 X X	8.0	800	: lb:26	10,27	27.70 27.70	10; 55	11.00	1.0	37:11	9 05. 3	RELINQUISHED BY:	EASH RASH DATE: 2/31 TIME:	DATE: TIME:	DATE: TIME:	
Curtis & Tompkins Laboratories ENVIRONMENTAL ANALYTICAL TESTING LABORATORY IN BUSINGS SINCE 1878	Phone (510) 486-0900 Fax (510) 486-0532			el:	1	SAMPLING	Date	3/31/14												SAMPLE RECEIPT	syjle Untact	On Ice	
Curtis & To ENVIRONMENTAL	323 Fifth Street erkeley, CA 94710	roject No: WR1774	roject Name: (26-Oakland	DD Format: Report Level:	urnaround lime; 🔲 Rush		No.	55-19-0.5	2 55-19, 2	3 55-19-4		- 02	\$5.	4 SS-21-05	55-24		55.22	۷,	55.23.	SS 22 and SS-23	-	father analysis.	

CHAIN OF CUSTODY

Page 2 of 2

Chain of Custody #			,	PuoN HODN	×	*					DATE: 3/3/ TIME: 1/0/ 34 MECEIVED BY:	DATE	TIME: DATE: TIME:
C&T LOGIN # 2	Cosa Mullangh	22	PRESERVATIVE	HNO3 HS2O¢							VQUISHED	DATE:	DATE:
1 1		i oll	VG MATRIX	Collected Water Solid	11:45 ×	¥ 05∶N	12:00				BASMA PASA		
Kins Labor VIICALIESTING LA In Bu Phone (51 Fax (51		Standard	SAMPLING		3/31/14	>	*	4			SAMPLE RECEIPT	Cold	M On Ice
Curtis & Tompkins Laboratories ENVIRONMENTAL ANALYTICAL TESTING LABORATORY in Business Since 1878 2323 Fifth Street Phone (510) 486-0900 Berkeley, CA 94710 Fax (510) 486-0532	No: ~8.1734 Name: & -Oakland mat: Report Level:	ime:	Sample ID		55-23-2	55-23.4	BRUIP, BAMK				• • • • • • • • • • • • • • • • • • • •	on hald for now	
2323 F	Project No: Project Name: EDD Format;	Turnaro	la G	O	∳	Z.	9				Notes:		

COOLER RECEIPT CHECKLIST



Login# 255150 Date Received 3 31 14 Number of coolers 1 Client ChEOSYNTEC Project GE-CAKLAND (WR1774A)
Date Opened 33114 By (print) W (sign) Date Logged in By (print) (sign)
1. Did cooler come with a shipping slip (airbill, etc)YES NO Shipping info
2A. Were custody seals present? YES (circle) on cooler on samples NO Name Date
2B. Were custody seals intact upon arrival? 3. Were custody papers dry and intact when received? 4. Were custody papers filled out properly (ink, signed, etc)? 5. Is the project identifiable from custody papers? (If so fill out top of form) 6. Indicate the packing in cooler: (if other, describe)
Bubble Wrap
Type of ice used: Wet □ Blue/Gel □ None Temp(°C)
☑ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun-
☒ Samples received on ice directly from the field. Cooling process had begun
8. Were Method 5035 sampling containers present? If YES, what time were they transferred to freezer? 9. Did all bottles arrive unbroken/unopened? 10. Are there any missing / extra samples? 11. Are samples in the appropriate containers for indicated tests? 12. Are sample labels present, in good condition and complete? 13. Do the sample labels agree with custody papers? 14. Was sufficient amount of sample sent for tests requested? 15. Are the samples appropriately preserved? 16. Did you check preservatives for all bottles for each sample? 17. Did you document your preservative check? 18. Did you change the hold time in LIMS for unpreserved VOAs? 19. Did you change the hold time in LIMS for preserved terracores? 20. Are bubbles > 6mm absent in VOA samples? 11. YES NO WA 21. Was the client contacted concerning this sample delivery? 12. YES NO WA 22. Who was called? 13. Dotto tests requested? 14. Was sufficient amount of sample sent for tests requested? 25. NO WA 26. NO WA 27. Did you change the hold time in LIMS for unpreserved VOAs? 28. NO WA 29. Did you change the hold time in LIMS for preserved terracores? 20. Are bubbles > 6mm absent in VOA samples? 21. Was the client contacted concerning this sample delivery? 22. Are bubbles > 6mm absent in VOA samples? 23. Was the client contacted concerning this sample delivery? 24. Was the client contacted concerning this sample delivery? 25. NO WA 26. NO WA 27. Did you change the hold time in LIMS for preserved terracores? 28. NO WA 29. Mas the client contacted concerning this sample delivery? 29. Date:
COMMENTS



Polychlorinated Biphenyls (PCBs) Lab #: 255150 Location: GE Oakland Client: Geosyntec Consultants Prep: EPA 3540 WR1774 EPA 8082 Project#: Analysis: Sampled: 03/31/14 03/31/14 Matrix: Soil Received: Units: ug/Kg Basis: as received Prepared: 04/01/14 20<u>9623</u> Batch#:

Field ID: SS-19-0.5 Diln Fac: 1.000
Type: SAMPLE Analyzed: 04/02/14
Lab ID: 255150-001

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	160	12	

Surrogate	%REC	Limits
TCMX	100	60-140
Decachlorobiphenyl	67	36-133

Field ID: SS-19-2 Diln Fac: 5.000 Type: SAMPLE Analyzed: 04/03/14 Lab ID: 255150-002

Analyte	Result	RL	
Aroclor-1016	ND	42	
Aroclor-1221	ND	83	
Aroclor-1232	ND	42	
Aroclor-1242	ND	42	
Aroclor-1248	ND	42	
Aroclor-1254	ND	42	
Aroclor-1260	1,300	42	

Surrogate	%REC	Limits
TCMX	103	60-140
Decachlorobiphenyl	78	36-133

Field ID: SS-19-4 Diln Fac: 1.000 Type: SAMPLE Analyzed: 04/02/14 Lab ID: 255150-003

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	360	12	

Surrogate	%REC	Limits
TCMX	74	60-140
Decachlorobiphenyl	39	36-133

ND= Not Detected RL= Reporting Limit

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Polychlorinated Biphenyls (PCBs) Lab #: 255150 Location: GE Oakland Client: Geosyntec Consultants EPA 3540 Prep: Analysis: Sampled: EPA 8082 03/31/14 Project#: WR1774 Matrix: Soil Received: 03/31/14 Units: ug/Kg Basis: as received Prepared: 04/01/14 Batch#: 209623

Field ID: SS-20-0.5 Type: SAMPLE Lab ID: 255150-004 Diln Fac: 1.000 Analyzed: 04/02/14

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	ND	12	

Sur	Surrogate %REC	Limits
TCMX	103	60-140
Decachlorobip	lorobiphenyl 74	36-133

Field ID: SS-20-2 Diln Fac: 1.000
Type: SAMPLE Analyzed: 04/02/14
Lab ID: 255150-005

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	ND	12	

Surrogate	%REC	Limits
TCMX	103	60-140
Decachlorobiphenyl	90	36-133

Field ID: SS-20-4 Diln Fac: 1.000 Type: SAMPLE Analyzed: 04/02/14 Lab ID: 255150-006

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	ND	12	

Surrogate	%REC	Limits
TCMX	106	60-140
Decachlorobiphenyl	94	36-133

ND= Not Detected RL= Reporting Limit

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Polychlorinated Biphenyls (PCBs) Lab #: 255150 Location: GE Oakland Client: Geosyntec Consultants EPA 3540 Prep: Analysis: Sampled: EPA 8082 03/31/14 Project#: WR1774 Matrix: Soil Received: 03/31/14 Units: ug/Kg Basis: as received Prepared: 04/01/14 Batch#: 209623

Field ID: SS-21-0.5 Type: SAMPLE Lab ID: 255150-007 Diln Fac: 1.000 Analyzed: 04/02/14

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	76	12	

Surrogate	%REC	Limits
TCMX	101	60-140
Decachlorobiphenyl	63	36-133

Field ID: SS-21-2 Diln Fac: 1.000
Type: SAMPLE Analyzed: 04/02/14
Lab ID: 255150-008

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	350	12	

Surrogate	%REC	Limits
TCMX	104	60-140
Decachlorobiphenyl	79	36-133

Field ID: SS-21-4 Diln Fac: 1.000 Type: SAMPLE Analyzed: 04/02/14 Lab ID: 255150-009

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	ND	12	

Surrogate	%REC	Limits
TCMX	108	60-140
Decachlorobiphenyl	92	36-133

ND= Not Detected RL= Reporting Limit

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	Polychlorinated	Biphenyls	(PCBs)
Lab #: Client: Project#:	255150 Geosyntec Consultants WR1774	Location: Prep: Analysis:	GE Oakland EPA 3540 EPA 8082
Matrix: Units: Basis: Batch#:	Soil ug/Kg as received 209623	Sampled: Received: Prepared:	03/31/14 03/31/14 04/01/14

Type: BLANK Diln Fac: 1.000 Lab ID: QC734358 Analyzed: 04/02/14

Analyte	Result	RL	
Aroclor-1016	ND	12	
Aroclor-1221	ND	24	
Aroclor-1232	ND	12	
Aroclor-1242	ND	12	
Aroclor-1248	ND	12	
Aroclor-1254	ND	12	
Aroclor-1260	ND	12	

Surrogate	%REC	Limits
CMX	101	60-140
Decachlorobiphenyl	89	36-133

ND= Not Detected RL= Reporting Limit Page 4 of 4



	Polychlorinated	Biphenyls	(PCBs)
Lab #:	255150	Location:	GE Oakland
Client:	Geosyntec Consultants	Prep:	EPA 3540
Project#:	WR1774	Analysis:	EPA 8082
Matrix:	Soil	Batch#:	209623
Units:	ug/Kg	Prepared:	04/01/14
Diln Fac:	1.000	Analyzed:	04/02/14

Type: BS Lab ID: QC734359

Analyte	Spiked	Result	%REC	Limits
Aroclor-1016	166.7	179.7	108	58-144
Aroclor-1260	166.7	183.2	110	55-146

Surrogate	%REC	Limits
TCMX	108	60-140
Decachlorobiphenyl	93	36-133

Type: BSD Lab ID: QC734360

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aroclor-1016	166.7	160.2	96	58-144	11	38
Aroclor-1260	166.7	168.8	101	55-146	8	54

	Surrogate	%REC	Limits
TCMX		102	60-140
Decachlo	orobiphenyl	85	36-133

APPENDIX C ProUCL OUTPUT FILES

•	DATA FROM BOUNDAF 6/5/2014 5:02:36 PM	RY OF WEST	FERN EXCAVATION AREA	
•	WorkSheet.xls			
	OFF			
	95%			
	2000			
undaryWest				
		General	Statistics	
Total	Number of Observations	15	Number of Distinct Observations	11
	Number of Detects	11	Number of Non-Detects	4
Nu	ımber of Distinct Detects	10	Number of Distinct Non-Detects	1
	Minimum Detect Maximum Detect	0.0014	Minimum Non-Detect Maximum Non-Detect	0.012
	Variance Detects	0.00993	Percent Non-Detects	26.67%
	Mean Detects	0.0993	SD Detects	0.0996
	Median Detects	0.069	CV Detects	1.037
	Skewness Detects	0.872	Kurtosis Detects	-0.803
	Mean of Logged Detects	-3.242	SD of Logged Detects	1.781
		0.2.12	52 0. 25ggad 25t55t5	
	Norm	nal GOF Tes	t on Detects Only	
SI	hapiro Wilk Test Statistic	0.836	Shapiro Wilk GOF Test	
5% Sh	hapiro Wilk Critical Value	0.85	Detected Data Not Normal at 5% Significance Level	
	Lilliefors Test Statistic	0.193	Lilliefors GOF Test	
59	% Lilliefors Critical Value	0.267	Detected Data appear Normal at 5% Significance Leve	el
	Detected Data appear	· Approximat	te Normal at 5% Significance Level	
Vanlar 1	Aeier (KM) Statistics	na Normal C	critical Values and other Nonparametric UCLs	
rapidii-N	Mean	0.071	Standard Error of Mean	0.0247
	SD	0.0914	95% KM (BCA) UCL	0.0247
	95% KM (t) UCL	0.115	95% KM (Percentile Bootstrap) UCL	0.111
	95% KM (z) UCL	0.112	95% KM Bootstrap t UCL	0.13
9	0% KM Chebyshev UCL	0.145	95% KM Chebyshev UCL	0.179
97.	5% KM Chebyshev UCL	0.226	99% KM Chebyshev UCL	0.317
			etected Observations Only	-
	A-D Test Statistic	0.251	Anderson-Darling GOF Test	- 1
	5% A-D Critical Value	0.768	Detected data appear Gamma Distributed at 5% Significance	e Level
	K-S Test Statistic 5% K-S Critical Value	0.131 0.266	Kolmogrov-Smirnoff GOF Detected data appear Gamma Distributed at 5% Significance	o Lovol
			stributed at 5% Significance Level	C LOVOI
	Gamma	Statistics or	Detected Data Only	
	k hat (MLE)	0.675	k star (bias corrected MLE)	0.552
	Theta hat (MLE)	0.142	Theta star (bias corrected MLE)	0.174
	nu hat (MLE)	14.86	nu star (bias corrected)	12.14
ML	.E Mean (bias corrected)	0.0961	MLE Sd (bias corrected)	0.129
		na Kaplan-M 0.604	eier (KM) Statistics	40.44
	k hat (KM)			
Approximate Chi	Square Value (19 11 a)		nu hat (KM)	18.11
***	Square Value (18.11, α)	9.473	Adjusted Chi Square Value (18.11, β)	8.712
Approximate Chi 95% Gamma Approximate KM			, ,	
• •	I-UCL (use when n>=50)	9.473 0.136	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50)	8.712
95% Gamma Approximate KM	I-UCL (use when n>=50) Gamma ROS	9.473 0.136 Statistics us	Adjusted Chi Square Value (18.11, β)	8.712
95% Gamma Approximate KM GROS may	Gamma ROS	9.473 0.136 Statistics us set has > 50%	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects	8.712
95% Gamma Approximate KM GROS may	Gamma ROS not be used when data s GROS may not be used	9.473 0.136 Statistics use thas > 50% when kstar c	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs	8.712
95% Gamma Approximate KM GROS may	Gamma ROS not be used when data s GROS may not be used such situations, GROS m	9.473 0.136 Statistics us set has > 50% when kstar conethod tends and UCLs ma	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1	8.712 0.148
95% Gamma Approximate KM GROS may	Gamma ROS Gamma ROS not be used when data s GROS may not be used such situations, GROS med detected data, BTVs a Minimum	9.473 0.136 Statistics use thas > 50% when kstar conethod tends and UCLs ma 0.0014	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean	8.712 0.148 0.0731
95% Gamma Approximate KM GROS may	Gamma ROS Gamma ROS not be used when data s GROS may not be used such situations, GROS r ed detected data, BTVs a Minimum Maximum	9.473 0.136 Statistics us set has > 50% when kstar conethod tends and UCLs mail 0.0014 0.26	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs any be computed using gamma distribution on KM estimates Mean Median	8.712 0.148 0.0731 0.02
95% Gamma Approximate KM GROS may	Gamma ROS Gamma ROS not be used when data s GROS may not be used such situations, GROS med detected data, BTVs a Minimum Maximum SD	9.473 0.136 Statistics us set has > 50% when kstar conethod tends and UCLs material 0.0014 0.26 0.093	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV	0.0731 0.02 1.271
95% Gamma Approximate KM GROS may	Gamma ROS not be used when data s GROS may not be used such situations, GROS n ed detected data, BTVs a Minimum Maximum SD k hat (MLE)	9.473 0.136 Statistics us set has > 50% when kstar contented tends and UCLs ma 0.0014 0.26 0.093 0.621	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE)	0.0731 0.02 1.271 0.541
95% Gamma Approximate KM GROS may	Gamma ROS not be used when data s GROS may not be used such situations, GROS n ed detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE)	9.473 0.136 Statistics us set has > 50% when kstar contented tends and UCLs ma 0.0014 0.26 0.093 0.621 0.118	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs by be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE)	0.0731 0.02 1.271 0.135
95% Gamma Approximate KM GROS may For For gamma distribute	Gamma ROS not be used when data s GROS may not be used such situations, GROS m ed detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE)	9.473 0.136 Statistics us set has > 50% when kstar of method tends and UCLs ma 0.0014 0.26 0.093 0.621 0.118 18.63	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs by be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected)	0.0731 0.02 1.271 0.135 16.24
95% Gamma Approximate KM GROS may For For gamma distribute	Gamma ROS not be used when data s GROS may not be used such situations, GROS n ed detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE)	9.473 0.136 Statistics us set has > 50% when kstar contented tends and UCLs ma 0.0014 0.26 0.093 0.621 0.118	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) MLE Sd (bias corrected)	0.0731 0.02 1.271 0.135 16.24 0.0994
95% Gamma Approximate KM GROS may For For gamma distribute	Gamma ROS not be used when data s GROS may not be used such situations, GROS m ed detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected)	9.473 0.136 Statistics us set has > 50% when kstar conethod tends and UCLs ma 0.0014 0.26 0.093 0.621 0.118 18.63 0.0731	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) Adjusted Level of Significance (β)	0.0731 0.02 1.271 0.135 16.24 0.0994 0.0324
95% Gamma Approximate KM GROS may For For gamma distribute	Gamma ROS not be used when he used such situations, GROS may not be used such situations, GROS med detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected)	9.473 0.136 Statistics us set has > 50% when kstar of method tends and UCLs ma 0.0014 0.26 0.093 0.621 0.118 18.63	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) MLE Sd (bias corrected)	0.0731 0.02 1.271 0.135 16.24 0.0994
95% Gamma Approximate KM GROS may For For gamma distribute ML Approximate Chi	Gamma ROS not be used when he used such situations, GROS may not be used such situations, GROS med detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected)	9.473 0.136 Statistics us set has > 50% when kstar conethod tends and UCLs ma 0.0014 0.26 0.093 0.621 0.118 18.63 0.0731	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) Adjusted Level of Significance (β) Adjusted Chi Square Value (16.24, β)	0.0731 0.02 1.271 0.135 16.24 0.0994 0.0324 7.433
95% Gamma Approximate KM GROS may For For gamma distribute ML Approximate Chi	Gamma ROS not be used when n>=50) Gamma ROS not be used when data s GROS may not be used such situations, GROS m ed detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected) Square Value (16.24, q) a UCL (use when n>=50)	9.473 0.136 Statistics us set has > 50% when kstar conethod tends and UCLs ma 0.0014 0.26 0.093 0.621 0.118 18.63 0.0731 8.13 0.146	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) Adjusted Level of Significance (β) Adjusted Chi Square Value (16.24, β)	0.0731 0.02 1.271 0.135 16.24 0.0994 0.0324 7.433
95% Gamma Approximate KM GROS may For For gamma distribute ML Approximate Chi 95% Gamma Approximate	Gamma ROS not be used when n>=50) Gamma ROS not be used when data s GROS may not be used such situations, GROS m ed detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected) Square Value (16.24, q) a UCL (use when n>=50)	9.473 0.136 Statistics us set has > 50% when kstar conethod tends and UCLs ma 0.0014 0.26 0.093 0.621 0.118 18.63 0.0731 8.13 0.146	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) MLE Sd (bias corrected) Adjusted Level of Significance (β) Adjusted Chi Square Value (16.24, β) 95% Gamma Adjusted UCL (use when n<50)	0.0731 0.02 1.271 0.135 16.24 0.0994 0.0324 7.433
95% Gamma Approximate KM GROS may For For gamma distribute ML Approximate Chi 95% Gamma Approximate SI	Gamma ROS not be used when data s GROS may not be used such situations, GROS m ed detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected) Square Value (16.24, q) be UCL (use when n>=50) Lognormal GC hapiro Wilk Test Statistic napiro Wilk Critical Value	9,473 0.136 Statistics us set has > 50% when kstar conethod tends and UCLs material (CLS material) (CLS materi	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) MLE Sd (bias corrected) Adjusted Level of Significance (β) Adjusted Level of Square Value (16.24, β) 95% Gamma Adjusted UCL (use when n<50) etected Observations Only Shapiro Wilk GOF Test Detected Data appear Lognormal at 5% Significance Level	0.0731 0.02 1.271 0.135 16.24 0.0994 7.433 0.16
95% Gamma Approximate KM GROS may For For gamma distribute ML Approximate Chi 95% Gamma Approximate Si 5% Si	Gamma ROS not be used when data s GROS may not be used such situations, GROS med detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected) GUCL (use when n>=50) Lognormal GC hapiro Wilk Test Statistic napiro Wilk Critical Value Lilliefors Test Statistic	9,473 0.136 Statistics us set has > 50% when kstar conethod tends and UCLs ma 0.0014 0.26 0.093 0.621 0.118 18.63 0.0731 8.13 0.146 DF Test on D 0.903 0.85 0.171	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CVV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) Adjusted Level of Significance (β) Adjusted Level of Significance (β) Adjusted Chi Square Value (16.24, β) 95% Gamma Adjusted UCL (use when n<50) etected Observations Only Shapiro Wilk GOF Test Detected Data appear Lognormal at 5% Significance Le	0.0731 0.02 1.271 0.541 0.135 16.24 0.0324 7.433 0.16
95% Gamma Approximate KM GROS may For For gamma distribute ML Approximate Chi 95% Gamma Approximate Si 5% Si	Gamma ROS not be used when data s GROS may not be used such situations, GROS m ed detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected) Square Value (16.24, q) be UCL (use when n>=50) Lognormal GC hapiro Wilk Test Statistic napiro Wilk Critical Value Lilliefors Test Statistic % Lilliefors Critical Value	9,473 0.136 Statistics us set has > 50% when kstar conethod tends and UCLs material (CLS material) (CLS materi	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) Adjusted Level of Significance (β) Adjusted Level of Significance (β) Adjusted Chi Square Value (16.24, β) 95% Gamma Adjusted UCL (use when n<50) Shapiro Wilk GOF Test Detected Data appear Lognormal at 5% Significance Le	0.0731 0.02 1.271 0.135 16.24 0.0994 0.0324 7.433 0.16
95% Gamma Approximate KM GROS may For For gamma distribute ML Approximate Chi 95% Gamma Approximate Si 5% Si	Gamma ROS not be used when data s GROS may not be used such situations, GROS m ed detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected) Square Value (16.24, q) be UCL (use when n>=50) Lognormal GC hapiro Wilk Test Statistic napiro Wilk Critical Value Lilliefors Test Statistic % Lilliefors Critical Value	9,473 0.136 Statistics us set has > 50% when kstar conethod tends and UCLs material (CLS material) (CLS materi	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CVV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) Adjusted Level of Significance (β) Adjusted Level of Significance (β) Adjusted Chi Square Value (16.24, β) 95% Gamma Adjusted UCL (use when n<50) etected Observations Only Shapiro Wilk GOF Test Detected Data appear Lognormal at 5% Significance Le	0.0731 0.02 1.271 0.541 0.135 16.24 0.0324 7.433 0.16
95% Gamma Approximate KM GROS may For For gamma distribute ML Approximate Chi 95% Gamma Approximate Si 5% Si	Gamma ROS not be used when data s GROS may not be used such situations, GROS m ed detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected) Square Value (16.24, q) b UCL (use when n>=50) Lognormal GC hapiro Wilk Test Statistic napiro Wilk Critical Value Lilliefors Test Statistic % Lilliefors Critical Value Detected Data ap	9,473 0.136 Statistics us set has > 50% when kstar contented tends and UCLs material (CLs material) (CLs mater	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected MLE) Adjusted Level of Significance (β) Adjusted Level of Significance (β) Adjusted Chi Square Value (16.24, β) 95% Gamma Adjusted UCL (use when n<50) Shapiro Wilk GOF Test Detected Data appear Lognormal at 5% Significance Lermal at 5% Significance Lermal at 5% Significance Lermal at 5% Significance Level	0.0731 0.02 1.271 0.541 0.135 16.24 0.0324 7.433 0.16
95% Gamma Approximate KM GROS may For For gamma distribute ML Approximate Chi 95% Gamma Approximate Si 5% Si	Gamma ROS not be used when data s GROS may not be used such situations, GROS m ed detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected) Square Value (16.24, q) b UCL (use when n>=50) Lognormal GC hapiro Wilk Test Statistic napiro Wilk Critical Value Lilliefors Test Statistic % Lilliefors Critical Value Detected Data ap	9,473 0.136 Statistics us set has > 50% when kstar contented tends and UCLs material (CLs material) (CLs mater	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) Adjusted Level of Significance (β) Adjusted Level of Significance (β) Adjusted Chi Square Value (16.24, β) 95% Gamma Adjusted UCL (use when n<50) Shapiro Wilk GOF Test Detected Data appear Lognormal at 5% Significance Le	0.0731 0.02 1.271 0.541 0.135 16.24 0.0324 7.433 0.16
95% Gamma Approximate KM GROS may For For gamma distribute ML Approximate Chi 95% Gamma Approximate Si 5% Si	Gamma ROS not be used when data s GROS may not be used such situations, GROS m ed detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected) Square Value (16.24, α) be UCL (use when n>=50) Lognormal GC hapiro Wilk Test Statistic napiro Wilk Critical Value Lilliefors Test Statistic % Lilliefors Critical Value Detected Data ap	9,473 0.136 Statistics use thas > 50% when kstar contented tends and UCLs material (CLs material) (CLs materia	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) MLE Sd (bias corrected) Adjusted Level of Significance (β) Adjusted Chi Square Value (16.24, β) 95% Gamma Adjusted UCL (use when n<50) Shapiro Wilk GOF Test Detected Data appear Lognormal at 5% Significance Lermal at 5% Significance Lermal at 5% Significance Lermal at 5% Significance Level Using Imputed Non-Detects	8.712 0.148 0.0731 0.02 1.271 0.541 0.135 16.24 0.0324 7.433 0.16
95% Gamma Approximate KM GROS may For For gamma distribute ML Approximate Chi 95% Gamma Approximate SI 5% St	Gamma ROS not be used when data s GROS may not be used such situations, GROS m ed detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected) Square Value (16.24, q) b UCL (use when n>=50) Lognormal GO hapiro Wilk Test Statistic napiro Wilk Critical Value Lilliefors Test Statistic % Lilliefors Critical Value Detected Data ap Lognormal RO: Mean in Original Scale	9,473 0.136 Statistics use thas > 50% when kstar contented tends and UCLs material (CLs material) (CLs materia	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) MLE Sd (bias corrected) Adjusted Level of Significance (β) Adjusted Level of Significance (β) Adjusted Chi Square Value (16.24, β) 95% Gamma Adjusted UCL (use when n<50) Petected Observations Only Shapiro Wilk GOF Test Detected Data appear Lognormal at 5% Significance Level Lilliefors GOF Test Detected Data appear Lognormal at 5% Significance Level Using Imputed Non-Detects Mean in Log Scale	0.0731 0.02 1.271 0.541 0.135 16.24 0.0994 7.433 0.16
95% Gamma Approximate KM GROS may For For gamma distribute ML Approximate Chi 95% Gamma Approximate SI 5% St 5% St	Gamma ROS not be used when data s GROS may not be used such situations, GROS m ed detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected) Square Value (16.24, q) be UCL (use when n>=50) Lognormal GO hapiro Wilk Test Statistic napiro Wilk Critical Value Lilliefors Test Statistic % Lilliefors Critical Value Detected Data ap Lognormal RO: Mean in Original Scale SD in Original Scale	9,473 0.136 Statistics use thas > 50% when kstar conethod tends and UCLs made to 10,0014 0.26 0.093 0.621 0.118 18.63 0.0731 8.13 0.146 DF Test on D 0.903 0.85 0.171 0.267 Depear Logno S Statistics (10,00713) 0.0943	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs by be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) Adjusted Level of Significance (β) Adjusted Level of Significance (β) Adjusted Chi Square Value (16.24, β) 95% Gamma Adjusted UCL (use when n<50) Petected Observations Only Shapiro Wilk GOF Test Detected Data appear Lognormal at 5% Significance Level Lilliefors GOF Test Detected Data appear Lognormal at 5% Significance Level Using Imputed Non-Detects Mean in Log Scale SD in Log Scale	0.0731 0.02 1.271 0.541 0.135 16.24 0.0994 7.433 0.16
95% Gamma Approximate KM GROS may For For gamma distribute ML Approximate Chi 95% Gamma Approximate SI 5% St 5% St	Gamma ROS not be used when data s GROS may not be used such situations, GROS med detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected) Guare Value (16.24, q) UCL (use when n>=50) Lognormal GO hapiro Wilk Test Statistic napiro Wilk Critical Value Lilliefors Test Statistic % Lilliefors Critical Value Detected Data ap Lognormal RO: Mean in Original Scale SD in Original Scale s normality of ROS data)	9,473 0,136 Statistics us set has > 50% when kstar conethod tends and UCLs material (CLs material) (CLs materi	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) Adjusted Level of Significance (β) Adjusted Level of Significance (β) Adjusted Chi Square Value (16.24, β) 95% Gamma Adjusted UCL (use when n<50) Petected Observations Only Shapiro Wilk GOF Test Detected Data appear Lognormal at 5% Significance Letermal at 5% Significance Lete	8.712 0.148 0.0731 0.02 1.271 0.541 0.135 16.24 0.0324 7.433 0.16
95% Gamma Approximate KM GROS may For For gamma distribute ML Approximate Chi 95% Gamma Approximate SI 5% St 5% St	Gamma ROS not be used when data s GROS may not be used such situations, GROS med detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) LE Mean (bias corrected) Square Value (16.24, q) UCL (use when n>=50) Lognormal GO hapiro Wilk Test Statistic napiro Wilk Critical Value Lilliefors Test Statistic % Lilliefors Critical Value Detected Data ap Lognormal RO Mean in Original Scale SD in Original Scale s normality of ROS data) 95% BCA Bootstrap UCL 95% H-UCL (Log ROS)	9.473 0.136 Statistics use thas > 50% when kstar conethod tends and UCLs made to 1.26 0.0014 0.26 0.093 0.621 0.118 18.63 0.0731 8.13 0.146 DF Test on D 0.903 0.85 0.171 0.267 Depear Logno S Statistics II 0.0713 0.0943 0.114 0.117 1.626	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs by be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) MLE Sd (bias corrected) Adjusted Level of Significance (β) Adjusted Level of Significance (β) Adjusted Chi Square Value (16.24, β) 95% Gamma Adjusted UCL (use when n<50) Petected Observations Only Shapiro Wilk GOF Test Detected Data appear Lognormal at 5% Significance Lettillefors GOF Test Detected Data appear Lognormal at 5% Significance Lettillefors GOF Test Detected Data appear Lognormal at 5% Significance Lettillefors GOF Test Detected Data appear Lognormal at 5% Significance Lettillefors GOF Test Detected Data Bota appear Lognormal at 5% Significance Lettillefors GOF Test Detected Data Bota appear Lognormal at 5% Significance Lettillefors GOF Test Detected Data Bota appear Lognormal at 5% Significance Lettillefors GOF Test Detected Data Bota appear Lognormal at 5% Significance Lettillefors GOF Test Detected Data Bota appear Lognormal at 5% Significance Lettillefors GOF Test Detected Data Bota appear Lognormal at 5% Significance Lettillefors GOF Test Detected Data Bota appear Lognormal at 5% Significance Lettillefors GOF Test Detected Data Bota appear Lognormal at 5% Significance Lettillefors GOF Test Detected Data Bota appear Lognormal at 5% Significance Lettillefors GOF Test Detected Data appear Lognormal at 5% Significance Lettillefors GOF Test Detected Data Bota appear Lognormal at 5% Significance Lettillefors GOF Test Detected Data appear Lognormal at 5% Significance Lettillefors GOF Test Detected Data Bota appear Lognormal at 5% Significance Lettillefors GOF Test Detected Data Bota appear Lognormal at 5% Significance Lettillefors GOF Test	8.712 0.148 0.0731 0.02 1.271 0.541 0.135 16.24 0.0324 7.433 0.16
95% Gamma Approximate KM GROS may For For gamma distribute ML Approximate Chi 95% Gamma Approximate SI 5% St 5% St	Gamma ROS not be used when data s GROS may not be used such situations, GROS med detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected) GUCL (use when n>=50) Lognormal GO hapiro Wilk Test Statistic napiro Wilk Critical Value Lilliefors Test Statistic % Lilliefors Critical Value Detected Data ap Lognormal RO Mean in Original Scale s D in Original Scale s normality of ROS data) 15% BCA Bootstrap UCL 95% H-UCL (Log ROS)	9,473 0,136 Statistics use thas > 50% when kstar conethod tends and UCLs made 0,0014 0,26 0,093 0,621 0,118 18,63 0,0731 8,13 0,146 DF Test on D 0,903 0,85 0,171 0,267 Depar Logno S Statistics 1 0,0713 0,0943 0,114 0,117 1,626	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs by be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) Adjusted Level of Significance (β) Adjusted Level of Significance (β) Adjusted Chi Square Value (16.24, β) 95% Gamma Adjusted UCL (use when n<50) Petected Observations Only Shapiro Wilk GOF Test Detected Data appear Lognormal at 5% Significance Level Lilliefors GOF Test Detected Data appear Lognormal at 5% Significance Level Using Imputed Non-Detects Mean in Log Scale 95% Percentile Bootstrap UCL 95% Bootstrap t UCL	8.712 0.148 0.0731 0.02 1.271 0.541 0.135 16.24 0.0394 7.433 0.16 vel
95% Gamma Approximate KM GROS may For For gamma distribute ML Approximate Chi 95% Gamma Approximate SI 5% St 5% St	Gamma ROS not be used when data s GROS may not be used such situations, GROS m ed detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected) Guare Value (16.24, q) UCL (use when n>=50) Lognormal GC hapiro Wilk Test Statistic napiro Wilk Critical Value Lilliefors Test Statistic % Lilliefors Critical Value Detected Data ap Lognormal RO Mean in Original Scale s Din Original Scale s normality of ROS data) 95% BCA Bootstrap UCL 95% H-UCL (Log ROS) gnormal Distribution and KM Mean (logged)	9.473 0.136 Statistics use thas > 50% when kstar conethod tends and UCLs made to 1.26 0.0014 0.26 0.093 0.621 0.118 18.63 0.0731 8.13 0.146 DF Test on D 0.903 0.85 0.171 0.267 0.	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs by be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) Adjusted Level of Significance (β) Adjusted Level of Significance (β) Adjusted Chi Square Value (16.24, β) 95% Gamma Adjusted UCL (use when n<50) Petected Observations Only Shapiro Wilk GOF Test Detected Data appear Lognormal at 5% Significance Level Lilliefors GOF Test Detected Data appear Lognormal at 5% Significance Level Using Imputed Non-Detects Mean in Log Scale SD in Log Scale 95% Percentile Bootstrap UCL 95% Bootstrap t UCL	0.0731 0.02 1.271 0.135 16.24 0.0994 7.433 0.16 vel vel -3.974 2.005 0.111 0.138
95% Gamma Approximate KM GROS may For For gamma distribute ML Approximate Chi 95% Gamma Approximate SI 5% St 5% St UCL (assumer	Gamma ROS not be used when data s GROS may not be used such situations, GROS n ed detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) Theta hat (MLE) LE Mean (bias corrected) Square Value (16.24, a) UCL (use when n>=50) Lognormal GC hapiro Wilk Test Statistic napiro Wilk Critical Value Lilliefors Test Statistic % Lilliefors Critical Value Detected Data ap Lognormal RO: Mean in Original Scale s D in Original Scale s normality of ROS data) DSW BCA Bootstrap UCL 95% H-UCL (Log ROS) gnormal Distribution and KM Mean (logged) KM SD (logged)	9.473 0.136 Statistics use thas > 50% when kstar conethod tends and UCLs made to 1.26 0.0014 0.26 0.093 0.621 0.118 18.63 0.0731 0.146 DF Test on D 0.903 0.85 0.171 0.267 0.9043 0.114 0.117 1.626 I KM Estimate -4.047 1.981	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs by be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) Adjusted Level of Significance (β) Adjusted Level of Significance (β) Adjusted Chi Square Value (16.24, β) 95% Gamma Adjusted UCL (use when n<50) Petected Observations Only Shapiro Wilk GOF Test Detected Data appear Lognormal at 5% Significance Level Lilliefors GOF Test Detected Data appear Lognormal at 5% Significance Level Using Imputed Non-Detects Mean in Log Scale 95% Percentile Bootstrap UCL 95% Bootstrap t UCL	8.712 0.148 0.0731 0.02 1.271 0.541 0.135 16.24 0.0394 7.433 0.16 vel
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95% Gamma Approximate KM GROS may For For gamma distribute ML Approximate Chi 95% Gamma Approximate SI 5% St 5% St UCL (assumer	Gamma ROS not be used when data s GROS may not be used such situations, GROS n ed detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) Theta hat (MLE) LE Mean (bias corrected) Square Value (16.24, a) UCL (use when n>=50) Lognormal GC hapiro Wilk Test Statistic napiro Wilk Critical Value Lilliefors Test Statistic % Lilliefors Critical Value Detected Data ap Lognormal RO: Mean in Original Scale s D in Original Scale s normality of ROS data) DSW BCA Bootstrap UCL 95% H-UCL (Log ROS) gnormal Distribution and KM Mean (logged) KM SD (logged)	9,473 0,136 Statistics us set has > 50% when kstar of method tends and UCLs material (Control of the control o	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs by be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) Adjusted Level of Significance (β) Adjusted Level of Significance (β) Adjusted Chi Square Value (16.24, β) 95% Gamma Adjusted UCL (use when n<50) Petected Observations Only Shapiro Wilk GOF Test Detected Data appear Lognormal at 5% Significance Level Lilliefors GOF Test Detected Data appear Lognormal at 5% Significance Level Using Imputed Non-Detects Mean in Log Scale SD in Log Scale 95% Percentile Bootstrap UCL 95% Bootstrap t UCL	0.0731 0.02 1.271 0.135 16.24 0.0994 7.433 0.16 vel vel -3.974 2.005 0.111 0.138
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95% Gamma Approximate KM GROS may For For gamma distribute Approximate Chi 95% Gamma Approximate SI 5% St 5° UCLs using Log KM Standan DL/2 N 95% t U DL/2 is	Gamma ROS not be used when data s GROS may not be used such situations, GROS med detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) In u hat (MLE) E Mean (bias corrected) Square Value (16.24, q) UCL (use when n>=50) Ucgnormal GC hapiro Wilk Critical Value Lilliefors Test Statistic potential Scale SD in Original Scale SD in Original Scale sommality of ROS data) SSW H-UCL (Log ROS) Grown Mean in Original Scale sommal Distribution and KM Mean (logged) KM SD (logged) d Error of Mean (logged) d Error of Mean (logged) lormal Mean in Original Scale SD in Original Scale sommal Distribution and KM Mean (logged) d Error of Mean (logged) d Error of Mean (logged) lormal Mean in Original Scale SD in Original Scale SD in Original Scale	9,473 0,136 Statistics us set has > 50% when kstar of method tends and UCLs made to 1,00014 0,26 0,0014 0,26 0,003 0,621 0,118 18,63 0,0731 0,146 DF Test on D 0,903 0,85 0,171 0,267 0pear Logno S Statistics II 0,0713 0,0943 0,114 0,117 1,626 I KM Estimat -4,047 1,981 0,542 DL/2 S 0,0721 0,0938 0,115 ethod, provide testing the state of	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs by be computed using gamma distribution on KM estimates Mean	8.712 0.148 0.0731 0.02 1.271 0.135 16.24 0.0994 0.0324 7.433 0.16 vel vel vel -3.974 2.005 0.111 0.138
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95% Gamma Approximate KM GROS may For For gamma distribute Approximate Chi 95% Gamma Approximate SI 5% St 5° UCLs using Log KM Standan DL/2 N 95% t U DL/2 is	Gamma ROS not be used when data s GROS may not be used such situations, GROS m ed detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected) Square Value (16.24, q) e UCL (use when n>=50) UCL (use when n>=50) Lognormal GC hapiro Wilk Critical Value Lilliefors Test Statistic % Lilliefors Critical Value Detected Data ap Lognormal RO: Mean in Original Scale SD in Original Scale s normality of ROS data) 95% H-UCL (Log ROS) Gnormal Distribution and KM Mean (logged) KM SD (logged) d Error of Mean (logged) d Error of Mean (logged) lormal Mean in Original Scale SD in Original Scale SD in Original Scale s normality of ROS data) bis BCA Bootstrap UCL gospormal Distribution and KM Mean (logged) d Error of Mean (logged) d Error of Mean (logged) d Error of Mean (logged) so in Original Scale SD in Original Scale SD in Original Scale SD in Original Scale	9,473 0,136 Statistics us set has > 50% when kstar of method tends and UCLs material (1988) and	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median K star (bias corrected MLE) Theta star (bias corrected MLE) Theta star (bias corrected) Adjusted Level of Significance (β) Adjusted Level of Significance (β) Adjusted Chi Square Value (16.24, β) 95% Gamma Adjusted UCL (use when n<50) Petected Observations Only Shapiro Wilk GOF Test Detected Data appear Lognormal at 5% Significance Level Lilliefors GOF Test Detected Data appear Lognormal at 5% Significance Level Using Imputed Non-Detects Mean in Log Scale 95% Percentile Bootstrap UCL 95% Bootstrap t UCL 95% Bootstrap t UCL 95% Bootstrap t UCL 95% Critical H Value (KM-Log) 95% Critical H Value (KM-Log) 95% H-UCL (KM-Log) 95% H-Stat UCL ded for comparisons and historical reasons tion Free UCL Statistics mal Distributed at 5% Significance Level UCL to Use	8.712 0.148 0.0731 0.02 1.271 0.135 16.24 0.0994 2.005 0.111 0.138 1.365 4.527 -3.742 1.733 0.693
95% Gamma Approximate KM GROS may For For gamma distribute Approximate Chi 95% Gamma Approximate Si 5% St 5 UCLs using Log KM Standam DL/2 N 95% t UCL DL/2 is Dete	Gamma ROS not be used when data s GROS may not be used such situations, GROS med detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected) Cugnormal GC hapiro Wilk Test Statistic hapiro Wilk Test Statistic hapiro Wilk Critical Value Lilliefors Test Statistic Lilliefors Critical Value Detected Data ap Lognormal RO: Mean in Original Scale SD in Original Scale s normality of ROS data) SS H-UCL (Log ROS) Grownal KM Mean (logged) Mean in Original Scale SD in Original Scale s normal Distribution and KM Mean (logged) d Error of Mean (logged) d Error of Mean (logged) d Toriginal Scale SD in Original Scale	9,473 0,136 Statistics use thas > 50% when kstar of method tends and UCLs made to 10,0014 0,26 0,0014 0,26 0,003 0,621 0,118 18,63 0,0731 0,146 DF Test on D 0,903 0,85 0,171 0,267 0,271 0,267 0,271 0,267 0,271 0,272 0,27	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) Adjusted Level of Significance (β) Adjusted Level of Significance (β) Adjusted Chi Square Value (16.24, β) 95% Gamma Adjusted UCL (use when n<50) Petected Observations Only Shapiro Wilk GOF Test Detected Data appear Lognormal at 5% Significance Le Lilliefors GOF Test Detected Data appear Lognormal at 5% Significance Le rmal at 5% Significance Level Using Imputed Non-Detects Mean in Log Scale 95% Percentile Bootstrap UCL 95% Bootstrap t UCL 95% Bootstrap t UCL 100 Scale 95% Critical H Value (KM-Log) 95% Critical H Value (KM-Log) 95% H-UCL (KM-Log) 95% Critical H Value (KM-Log) 100 Scale 100 Sc	0.0731 0.02 1.271 0.148 0.093 1.271 0.135 16.24 0.0994 7.433 0.16 vel -3.974 2.005 0.111 0.138 1.365 4.527 -3.742 1.733 0.693
95% Gamma Approximate KM GROS may For For gamma distribute Approximate Chi 95% Gamma Approximate Si 5% St 5% UCLs using Log WKM Standam DL/2 N 95% t UCL DL/2 Is Dete	Gamma ROS not be used when n>=50) Gamma ROS not be used when data s GROS may not be used such situations, GROS med detected data, BTVs a Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) E Mean (bias corrected) Guare Value (16.24, q) Guare V	9,473 0,136 Statistics use thas > 50% when kstar of method tends and UCLs made to 10,0014 0,26 0,0014 0,26 0,003 0,621 0,118 18,63 0,0731 0,146 DF Test on D 0,903 0,85 0,171 0,267 0,271 0,267 0,271 0,267 0,271 0,271 0,272 0,27	Adjusted Chi Square Value (18.11, β) 95% Gamma Adjusted KM-UCL (use when n<50) sing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean	0.0731 0.02 1.271 0.148 0.093 1.271 0.135 16.24 0.0994 7.433 0.16 vel -3.974 2.005 0.111 0.138 1.365 4.527 -3.742 1.733 0.693

User Selected Options Date/Time of Computation	6/5/2014 5:03:07 PM	RY OF EAST	ERN EXCAVATION AREA	
From File	WorkSheet.xls			
Full Precision	OFF			
Confidence Coefficient Number of Bootstrap Operations	95% 2000			
undaryEast				
		General	Statistics	
Tota	I Number of Observations	24	Number of Distinct Observations	15
	Number of Detects	16 14	Number of Non-Detects Number of Distinct Non-Detects	8
<u></u>	Minimum Detect		Minimum Non-Detect	0.012
	Maximum Detect	1.3	Maximum Non-Detect	0.012
	Variance Detects Mean Detects	0.137 0.371	Percent Non-Detects SD Detects	33.33%
	Median Detects	0.305	CV Detects	0.998
	Skewness Detects	1.469	Kurtosis Detects	1.528
	Mean of Logged Detects	-1.518	SD of Logged Detects	1.175
	Nom	nal GOF Test	t on Detects Only	
	Shapiro Wilk Test Statistic		Shapiro Wilk GOF Test	
5% 8	Shapiro Wilk Critical Value Lilliefors Test Statistic	0.887	Detected Data Not Normal at 5% Significance Level Lilliefors GOF Test	
!	5% Lilliefors Critical Value	0.222	Detected Data Not Normal at 5% Significance Level	
	Detected Data	Not Normal	at 5% Significance Level	
Kaplan-	Meier (KM) Statistics usin	g Normal Cri	tical Values and other Nonparametric UCLs	
	Mean	0.251	Standard Error of Mean	0.0713
	95% KM (t) UCL	0.338	95% KM (BCA) UCL 95% KM (Percentile Bootstrap) UCL	0.37 0.373
	95% KM (t) UCL	0.374	95% KM (Percentile Bootstrap) UCL 95% KM Bootstrap t UCL	0.373
	90% KM Chebyshev UCL	0.465	95% KM Chebyshev UCL	0.562
97	7.5% KM Chebyshev UCL	0.697	99% KM Chebyshev UCL	0.961
	Gamma GOF	Tests on Det	tected Observations Only	
	A-D Test Statistic	0.274	Anderson-Darling GOF Test	
	5% A-D Critical Value		Detected data appear Gamma Distributed at 5% Significanc	e Level
	K-S Test Statistic 5% K-S Critical Value	0.138	Kolmogrov-Smirnoff GOF Detected data appear Gamma Distributed at 5% Significance	e Level
			tributed at 5% Significance Level	
		0	B	
	k hat (MLE)	1.085	Detected Data Only k star (bias corrected MLE)	0.923
	Theta hat (MLE)	0.342	Theta star (bias corrected MLE)	0.402
	nu hat (MLE)	34.72	nu star (bias corrected)	29.54
M	ILE Mean (bias corrected)	0.371	MLE Sd (bias corrected)	0.386
	Gamm	a Kaplan-Me	eler (KM) Statistics	
	k hat (KM)			
Approximate Cl		0.553	nu hat (KM)	26.54
95% Gamma Approximate K	ni Square Value (26.54, α) M-UCL (use when n>=50) Gamma ROS	15.79 0.422 Statistics usi	nu hat (KM) Adjusted Chi Square Value (26.54, β) 95% Gamma Adjusted KM-UCL (use when n<50) Ing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs	26.54 15.21 0.439
95% Gamma Approximate K GROS ma	ni Square Value (26.54, c) M-UCL (use when n>=50) Gamma ROS y not be used when data s GROS may not be used r such situations, GROS r	15.79 0.422 Statistics using the set has > 50% when kstar contented tends	Adjusted Chi Square Value (26.54, β) 95% Gamma Adjusted KM-UCL (use when n<50) ing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs	15.21
95% Gamma Approximate K GROS ma	ni Square Value (26.54, c) M-UCL (use when n>=50) Gamma ROS y not be used when data s GROS may not be used r such situations, GROS r	15.79 0.422 Statistics using the set has > 50% when kstar contented tends	Adjusted Chi Square Value (26.54, β) 95% Gamma Adjusted KM-UCL (use when n<50) ing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1	15.21
95% Gamma Approximate K GROS ma	ni Square Value (26.54, d) M-UCL (use when n>=50) Gamma ROS y not be used when data: GROS may not be used r such situations, GROS r uted detected data, BTVs Minimum Maximum	15.79 0.422 Statistics using set has > 509 when kstar contented tends and UCLs made 0.01 1.3	Adjusted Chi Square Value (26.54, β) 95% Gamma Adjusted KM-UCL (use when n<50) ing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median	0.439 0.251 0.093
95% Gamma Approximate K GROS ma	ni Square Value (26.54, d) M-UCL (use when n>=50) Gamma ROS y not be used when data s GROS may not be used r such situations, GROS r uted detected data, BTVs Minimum	15.79 0.422 Statistics using the set has > 50% when kstar connected tends and UCLs made of the set	Adjusted Chi Square Value (26.54, β) 95% Gamma Adjusted KM-UCL (use when n<50) ing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean	15.21 0.439 0.251
95% Gamma Approximate K GROS ma	ni Square Value (26.54, d) M-UCL (use when n>=50) Gamma ROS y not be used when data: GROS may not be used r such situations, GROS r uted detected data, BTVs Minimum Maximum	15.79 0.422 Statistics using the set has > 50% when kstar contented tends and UCLs made to 1.3 0.01 1.3 0.346	Adjusted Chi Square Value (26.54, β) 95% Gamma Adjusted KM-UCL (use when n<50) ing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV	0.439 0.251 0.093 1.379
95% Gamma Approximate K GROS ma Fo For gamma distribu	mi Square Value (26.54, qi M-UCL (use when n>=50) Gamma ROS y not be used when data si GROS may not be used r such situations, GROS ri sted detected data, BTVs Minimum Maximum SD k hat (MLE) Theta hat (MLE)	15.79 0.422 Statistics using the set has > 509 when kstar contented tends and UCLs may be used to 1.3 0.346 0.539 0.465 25.89	Adjusted Chi Square Value (26.54, β) 95% Gamma Adjusted KM-UCL (use when n<50) Ing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 It o yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CVV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected)	0.439 0.439 0.251 0.093 1.379 0.5 0.502 23.99
95% Gamma Approximate K GROS ma Fo For gamma distribu	in Square Value (26.54, or M-UCL (use when n>=50) Gamma ROS y not be used when data as GROS may not be used r such situations, GROS related detected data, BTVs Minimum Maximum SD k hat (MLE)	15.79 0.422 Statistics using the set has > 509 when kstar contented tends and UCLs made of the set	Adjusted Chi Square Value (26.54, β) 95% Gamma Adjusted KM-UCL (use when n<50) Ing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) MLE Sd (bias corrected)	0.251 0.093 1.379 0.5 0.502 23.99 0.355
95% Gamma Approximate K GROS ma Fo For gamma distribu	mi Square Value (26.54, qi M-UCL (use when n>=50) Gamma ROS y not be used when data si GROS may not be used r such situations, GROS ri sted detected data, BTVs Minimum Maximum SD k hat (MLE) Theta hat (MLE)	15.79 0.422 Statistics using the set has > 50% when kstar of the set has been determined to	Adjusted Chi Square Value (26.54, β) 95% Gamma Adjusted KM-UCL (use when n<50) Ing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 It o yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CVV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected)	0.251 0.093 1.379 0.5 0.502 23.99 0.355
95% Gamma Approximate K GROS ma Fo For gamma distribu M Approximate Cl	mi Square Value (26.54, q' M-UCL (use when n>=50) Gamma ROS y not be used when data a GROS may not be used r such situations, GROS r sted detected data, BTVs Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE)	15.79 0.422 Statistics using the set has > 50% when kstar of the set has been determined to	Adjusted Chi Square Value (26.54, β) 95% Gamma Adjusted KM-UCL (use when n<50) Ing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 Ito yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) Adjusted Level of Significance (β)	0.251 0.093 1.379 0.502 23.99 0.355 0.0392
95% Gamma Approximate K GROS ma Fo For gamma distribu M Approximate Cl	mi Square Value (26.54, q' M-UCL (use when n>=50) Gamma ROS y not be used when data a GROS may not be used r such situations, GROS r when detected data, BTVs Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) ILE Mean (bias corrected) mi Square Value (23.99, q' te UCL (use when n>=50)	15.79 0.422 Statistics using the set has > 50% when kstar contented tends and UCLs may be used to	Adjusted Chi Square Value (26.54, β) 95% Gamma Adjusted KM-UCL (use when n<50) Ing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) Adjusted Level of Significance (β) Adjusted Chi Square Value (23.99, β)	0.251 0.093 1.379 0.502 23.99 0.355 0.0392 13.3
95% Gamma Approximate K GROS ma Fo For gamma distribu M Approximate CI 95% Gamma Approxima	mi Square Value (26.54, q' M-UCL (use when n>=50) Gamma ROS y not be used when data a GROS may not be used r such situations, GROS r when detected data, BTVs Minimum Maximum SD k hat (MLE) Theta hat (MLE) nu hat (MLE) ILE Mean (bias corrected) mi Square Value (23.99, q' te UCL (use when n>=50)	15.79 0.422 Statistics using the has > 50% when kstar of the hard ucls made of the hard	Adjusted Chi Square Value (26.54, β) 95% Gamma Adjusted KM-UCL (use when n<50) Ing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 Ito yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median CV k star (bias corrected MLE) Theta star (bias corrected MLE) nu star (bias corrected) MLE Sd (bias corrected) Adjusted Level of Significance (β) Adjusted Chi Square Value (23.99, β) 95% Gamma Adjusted UCL (use when n<50)	0.251 0.093 1.379 0.502 23.99 0.355 0.0392 13.3
95% Gamma Approximate K GROS ma Fo For gamma distribu M Approximate CI 95% Gamma Approxima	in Square Value (26.54, or M-UCL (use when n>=50) Gamma ROS y not be used when data at GROS may not be used r such situations, GROS related detected data, BTVs Minimum Maximum SD k hat (MLE) Theta hat (MLE) ILE Mean (bias corrected) ILE Wean (bias corrected) te UCL (use when n>=50) Lognormal GC Shapiro Wilk Test Statistic Shapiro Wilk Critical Value	15.79 0.422 Statistics using the has > 509 when kstar contented tends and UCLs may be used to be u	Adjusted Chi Square Value (26.54, β) 95% Gamma Adjusted KM-UCL (use when n<50) Ing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 Ito yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean	0.251 0.093 1.379 0.5 0.502 23.99 0.355 0.0392 13.3 0.452
95% Gamma Approximate K GROS ma Fo For gamma distribu M Approximate CI 95% Gamma Approxima	mi Square Value (26.54, q' M-UCL (use when n>=50) Gamma ROS y not be used when data a GROS may not be used r such situations, GROS r Inted detected data, BTVs Minimum Maximum SD k hat (MLE) Theta hat (MLE) ILE Mean (bias corrected) ILE Ween (vice when n>=50) Lognormal GO Shapiro Wilk Test Statistic	15.79 0.422 Statistics using the has > 509 when kstar contented tends and UCLs may be used to be u	Adjusted Chi Square Value (26.54, β) 95% Gamma Adjusted KM-UCL (use when n<50) Ing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 Ito yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean	0.251 0.093 1.379 0.5 0.502 23.99 0.355 0.0392 13.3 0.452
95% Gamma Approximate K GROS ma Fo For gamma distribu M Approximate CI 95% Gamma Approxima \$ 5	in Square Value (26.54, q' M-UCL (use when n>=50) Gamma ROS y not be used when data a GROS may not be used r such situations, GROS r ited detected data, BTVs Minimum Maximum SD k hat (MLE) Theta hat (MLE) ILE Mean (bias corrected) ILE Wean (bias corrected) Lognormal GC Shapiro Wilk Test Statistic Shapiro Wilk Critical Value Lilliefors Test Statistic 5% Lilliefors Critical Value	15.79 0.422 Statistics using the has > 509 when kstar contented tends and UCLs may be used to be u	Adjusted Chi Square Value (26.54, β) 95% Gamma Adjusted KM-UCL (use when n<50) Ing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 Ito yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean	0.251 0.093 1.379 0.5 0.502 23.99 0.355 0.0392 13.3 0.452
95% Gamma Approximate K GROS ma Fo For gamma distribu M Approximate CI 95% Gamma Approxima	in Square Value (26.54, q' M-UCL (use when n>=50) Gamma ROS y not be used when data a GROS may not be used r such situations, GROS r ited detected data, BTVs Minimum Maximum SD k hat (MLE) Theta hat (MLE) ILE Mean (bias corrected) ILE Wean (bias corrected) te UCL (use when n>=50) Lognormal GO Shapiro Wilk Test Statistic Shapiro Wilk Critical Value Lilliefors Test Statistic 5% Lilliefors Critical Value Detected Data ap	15.79 0.422 Statistics using the has > 509 when kstar contented tends and UCLs may be used to be u	Adjusted Chi Square Value (26.54, β) 95% Gamma Adjusted KM-UCL (use when n<50) Ing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 Ito yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean	0.251 0.093 1.379 0.5 0.502 23.99 0.355 0.0392 13.3 0.452
95% Gamma Approximate K GROS ma Fo For gamma distribu M Approximate CI 95% Gamma Approxima	in Square Value (26.54, q' M-UCL (use when n>=50) Gamma ROS y not be used when data a GROS may not be used r such situations, GROS r ited detected data, BTVs Minimum Maximum SD k hat (MLE) Theta hat (MLE) ILE Mean (bias corrected) ILE Wean (bias corrected) te UCL (use when n>=50) Lognormal GO Shapiro Wilk Test Statistic Shapiro Wilk Critical Value Lilliefors Test Statistic 5% Lilliefors Critical Value Detected Data ap	15.79 0.422 Statistics using the has > 509 when kstar contented tends and UCLs may be used to be u	Adjusted Chi Square Value (26.54, β) 95% Gamma Adjusted KM-UCL (use when n<50) Ing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 Ito yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean	0.251 0.093 1.379 0.5 0.502 23.99 0.355 0.0392 13.3 0.452
95% Gamma Approximate K GROS ma Fo For gamma distribut M Approximate CI 95% Gamma Approxima	in Square Value (26.54, q' M-UCL (use when n>=50) Gamma ROS y not be used when data a GROS may not be used r such situations, GROS r inted detected data, BTVs Minimum Maximum SD k hat (MLE) Theta hat (MLE) ILE Mean (bias corrected) ILE Mean (bias corrected) Lognormal GO Shapiro Wilk Test Statistic Shapiro Wilk Critical Value Lilliefors Test Statistic Detected Data ap Lognormal RO: Mean in Original Scale SD in Original Scale SD in Original Scale	15.79 0.422 Statistics using the has > 509 when kstar contented tends and UCLs may be used to be u	Adjusted Chi Square Value (26.54, β) 95% Gamma Adjusted KM-UCL (use when n<50) Ing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 Ito yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median	0.251 0.093 1.379 0.5 0.502 23.99 0.355 0.0392 13.3 0.452 vel
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95% Gamma Approximate K GROS ma Fo For gamma distribut Approximate Ct 95% Gamma Approxima \$ 5% \$ 5% \$ 5% \$ 5% \$ 5% \$ 5% \$ 5% \$ 5	in Square Value (26.54, or M-UCL (use when n>=50) Gamma ROS y not be used when data at GROS may not be used r such situations, GROS related detected data, BTVs. Minimum Maximum SD K hat (MLE) Theta hat (MLE) Theta hat (MLE) ILE Mean (bias corrected) ILE Mean (bias corrected) ILE Mean (bias corrected) ILE Mean (bias corrected) Lognormal GO Shapiro Wilk Test Statistic Shapiro Wilk Critical Value Lilliefors Test Statistic Shapiro Wilk Critical Value Lilliefors Test Statistic Statistic Statistic Statistic Statistic Shapiro Wilk Critical Value Lilliefors Test Statistic Shapiro Wilk Critical Value Li	15.79 0.422	Adjusted Chi Square Value (26.54, β) 95% Gamma Adjusted KM-UCL (use when n<50) Ing Imputed Non-Detects 6 NDs with many tied observations at multiple DLs of detected data is small such as < 0.1 to yield inflated values of UCLs and BTVs ay be computed using gamma distribution on KM estimates Mean Median K star (bias corrected MLE) Theta star (bias corrected MLE) Nu star (bias corrected MLE) Adjusted Level of Significance (β) Adjusted Level of Significance (β) Adjusted Chi Square Value (23.99, β) 95% Gamma Adjusted UCL (use when n<50) Intected Observations Only Shapiro Wilk GOF Test Detected Data appear Lognormal at 5% Significance Le Lilliefors GOF Test Detected Data appear Lognormal at 5% Significance Le mail at 5% Significance Level Ising Imputed Non-Detects Mean in Log Scale 95% Percentile Bootstrap UCL 95% Bootstrap t UCL 95% Bootstrap t UCL 95% Bootstrap t UCL 95% Critical H Value (KM-Log) 95% Critical H Value (KM-Log) 4 Dia Log Scale 95% H-Stat UCL 4 dor comparisons and historical reasons In Free UCL Statistics In Comparisons and historical reasons In Free UCL Statistics In Comparisons and historical reasons	0.251 0.093 1.379 0.5 0.502 23.99 0.355 0.0392 13.3 0.452 vel -2.464 1.717 0.373 0.429 1.101 3.52 -2.717 1.975 2.461

User Selected Options	ALL DATA FROM OUTS	IDE EXCAV	ATION AREAS	
Date/Time of Computation	6/5/2014 4:50:05 PM			
From File Full Precision	WorkSheet.xls OFF			
Confidence Coefficient	95%			
Number of Bootstrap Operations	2000			
ıt				
		General	Challatian	
Total	Number of Observations	47	Number of Distinct Observations	28
	Number of Detects	33	Number of Non-Detects	14
Nı	umber of Distinct Detects Minimum Detect	27 0.0014	Number of Distinct Non-Detects Minimum Non-Detect	0.012
	Maximum Detect	0.96	Maximum Non-Detect	0.014
	Variance Detects Mean Detects	0.0536 0.17	Percent Non-Detects SD Detects	29.799
	Median Detects	0.17	CV Detects	1.362
	Skewness Detects	2.284	Kurtosis Detects	5.565
	Mean of Logged Detects	-2.831	SD of Logged Detects	1.778
	Norm	al GOF Test	t on Detects Only	
	hapiro Wilk Test Statistic	0.705 0.931	Shapiro Wilk GOF Test Detected Data Not Normal at 5% Significance Level	
0700	Lilliefors Test Statistic	0.238	Lilliefors GOF Test	
5	% Lilliefors Critical Value	0.154	Detected Data Not Normal at 5% Significance Level	
	Detected Data	Not Normal	at 5% Significance Level	
Kaplan-N			tical Values and other Nonparametric UCLs	
	Mean SD	0.12 0.206	Standard Error of Mean 95% KM (BCA) UCL	0.0305
	95% KM (t) UCL	0.171	95% KM (Percentile Bootstrap) UCL	0.174
	95% KM (z) UCL	0.17 0.211	95% KM Bootstrap t UCL 95% KM Chebyshev UCL	0.199 0.253
	.5% KM Chebyshev UCL	0.211	95% KM Chebyshev UCL 99% KM Chebyshev UCL	0.253
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	Gamma GOF A-D Test Statistic	Tests on Def 0.303	tected Observations Only Anderson-Darling GOF Test	
	5% A-D Critical Value	0.803	Detected data appear Gamma Distributed at 5% Significance	e Level
	K-S Test Statistic 5% K-S Critical Value	0.0893	Kolmogrov-Smirnoff GOF Detected data appear Gamma Distributed at 5% Significance	e I evel
			tributed at 5% Significance Level	e Level
	Commo	Ctatistics on	Detected Data Only	
	k hat (MLE)	0.586	k star (bias corrected MLE)	0.553
	Theta hat (MLE)	0.29	Theta star (bias corrected MLE)	0.307
MI	nu hat (MLE) LE Mean (bias corrected)	38.67 0.17	nu star (bias corrected) MLE Sd (bias corrected)	36.48 0.228
			, ,	
	Comm			
			pler (KM) Statistics	32.02
	k hat (KM) i Square Value (32.02, α)	0.341 20.09	nu hat (KM) Adjusted Chi Square Value (32.02, β)	32.02 19.79
95% Gamma Approximate KN	k hat (KM) i Square Value (32.02, α) M-UCL (use when n>=50) Gamma ROS	0.341 20.09 0.191 Statistics usi	nu hat (KM)	
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